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JUNE 1987 • ISSUE 32

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THE CONSORTIUM
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SPECIAL

Rick Gibson
Of The Consortium

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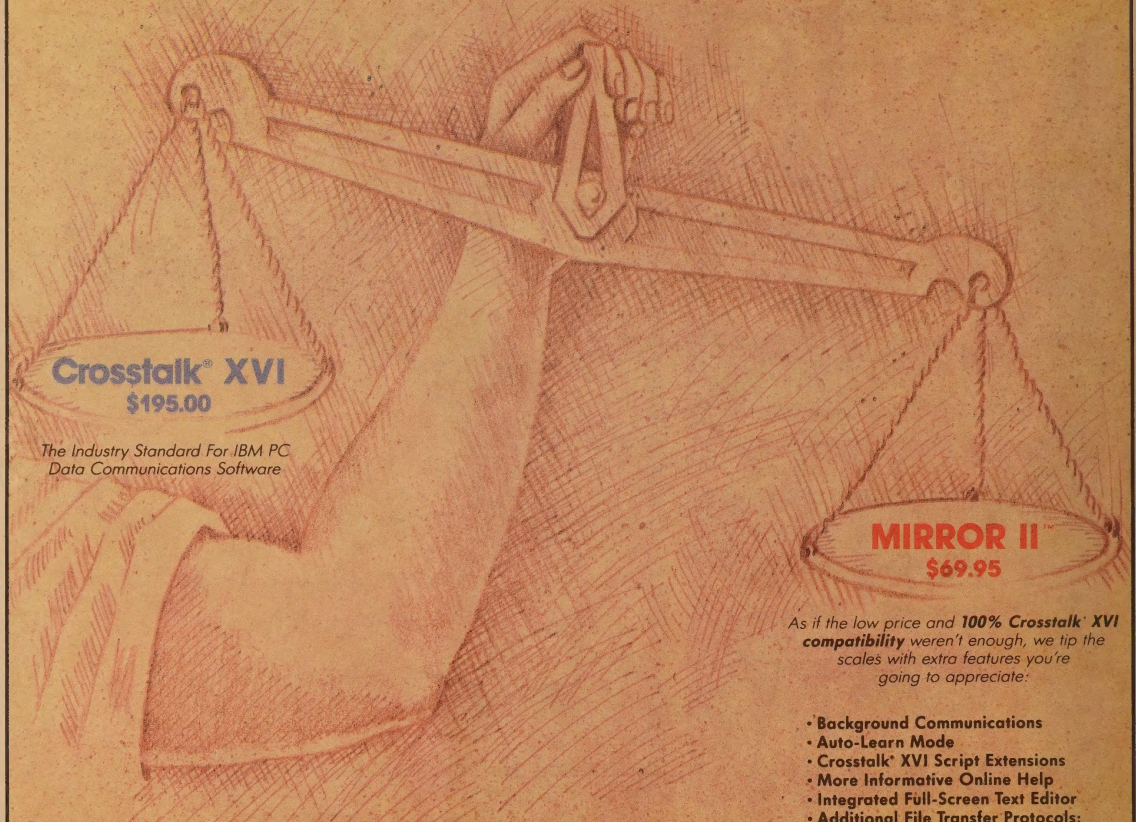

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Ezra Shapiro

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Government Computer News
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P. L. Olympia

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PC Products
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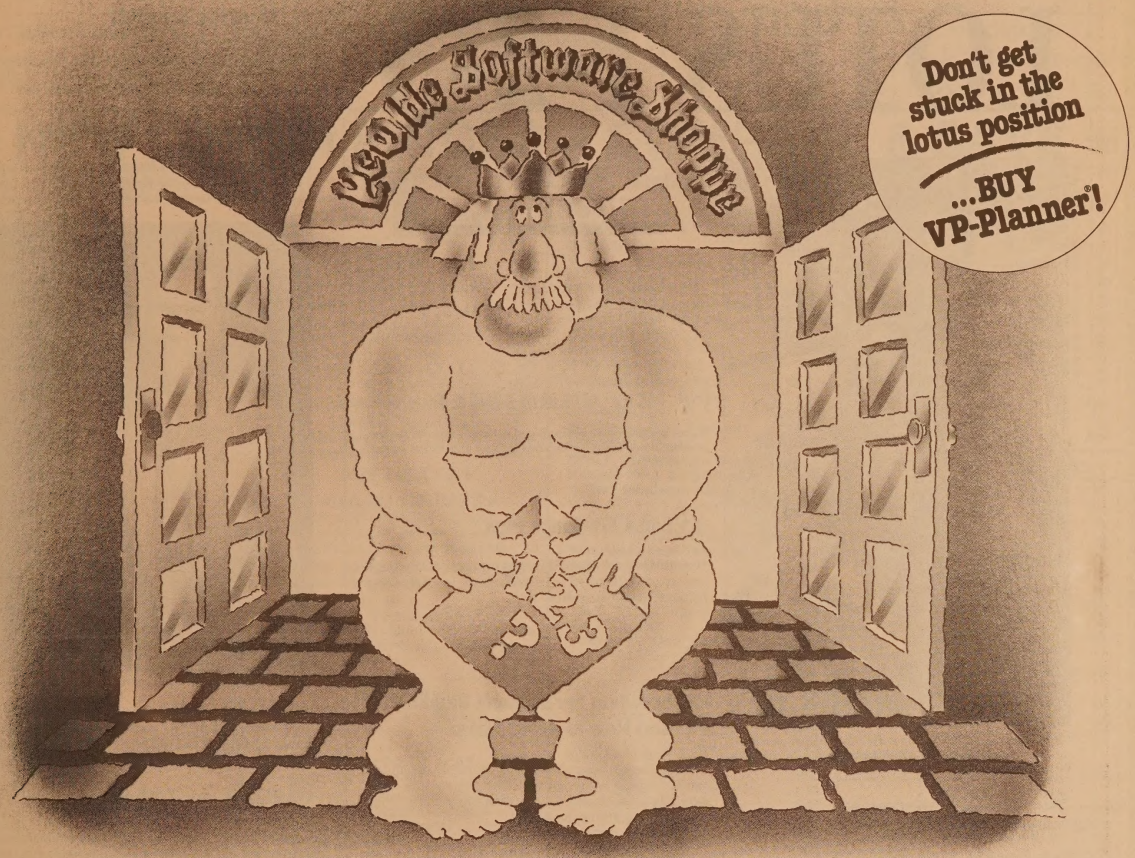
The Tale of the Emperor's Spreadsheet



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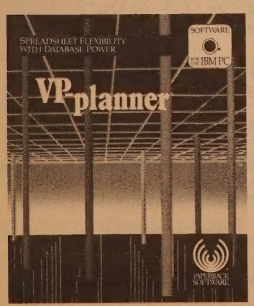

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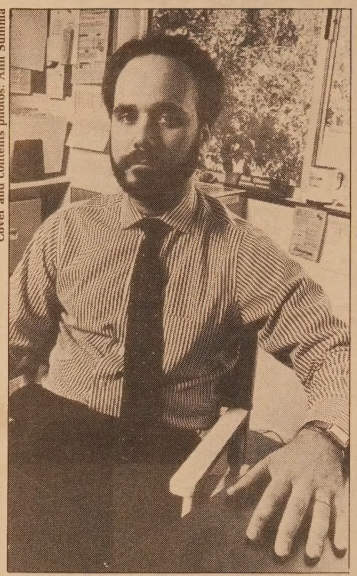
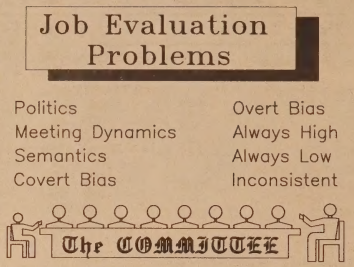
LOTUS 1-2-3

Cover and contents photos: Ann Summa



Under Rick Gibson's direction, The Consortium provides an umbrella organization for developers of specific solutions for Lotus users. See page 50.



If your audiences are getting bored with the same old stodgy presentations, Lotus Freelance Plus can add visual impact to your data.

43 Lotus Freelance Plus
By Woody Liswood
How this powerful and flexible graphics package lets you create effective visual presentations of the data in your spreadsheet files.

46 Common Spreadsheet Pitfalls – And How to Avoid Them
By Robert Moskowitz
Human error finds its way into spreadsheets and wreaks untold havoc all too often. Here's how to avoid those errors and evade calamaties ranging from embarrassment to catastrophe.

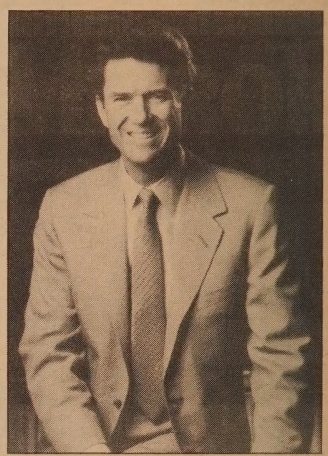
50 The Lotus Aftermarket: HAL And Beyond
By Jeff Spurrier
"HAL's Uncle," Rick Gibson of The Consortium, talks about the burgeoning market for add-on and add-in products for the industry-standard spreadsheet from Lotus, and how they provide useful tools for the business user. He also expresses his views on the also-burgeoning 1-2-3 clone market.

58 Lotus Enhancement Products
A sampling of products for enhancing the performance of 1-2-3.

FEATURES

60 MicroPro Promises New WordStar For CP/M
By Serge Timacheff
CP/M users rejoice — not only is MicroPro committed to releasing a *WordStar* update just for you, it's actively soliciting your input. Read All Here...

65 Kaypro Enters The 386 Era
By Robert Beauchamp
Early last year, Kaypro faced an uncertain future. Today, the company has made a successful transition from the CP/M to the MS-DOS marketplace, de-



President David Kay of Kaypro.

veloped its own line of 80386-based machines, and announced a complete desktop publishing package. Kaypro president David Kay talks about the planning that made it all possible, and looks to the future.

68 Hands On: TurboMax
By Jim Wolcott
If you'd like to give your old Mac the performance of its newer, faster brethren — especially if you need to do a lot of number-crunching — this board's for you.

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Microsoft heralds the era of CD-ROM — and what it means to the average user.

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Sun Microsystems drops the price on its low-end workstation — and why this may bring a UNIX network to a workplace near you sooner than you expected.

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By Matthew Leeds
Report from The Commodore Show — new products for the 64, 128 and Amiga.

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By Helmi Kobler
Atari wasn't exhibiting at the West Coast Computer Faire, but third-party developers made an impressive showing.

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Databasing on networks — how to avoid the pitfalls.

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Real scientific applications on CP/M machines.

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By Brock N. Meeks
Big Brother may be watching your favorite online database. Soon he may want to keep you out of it.

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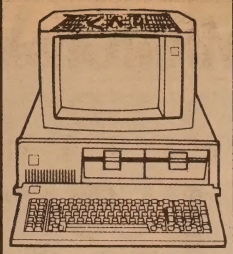

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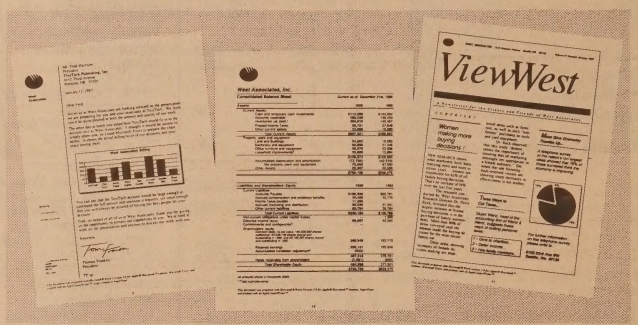

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This Vol. 4. No. 5, June 1987, Whole No. 32 MicroTimes, California's Computer Magazine, is published by BAM Publications, Inc., 5951 Canning St., Oakland, CA 94609. Phone (415) 652-3810. Los Angeles Office, 1800 N. Highland, Suite 220, Hollywood, CA 90028. Phone (213) 467-7878. San Jose Office, 36 Harold Ave., Suite 8, San Jose, CA 95117. Phone (408) 244-4400. Anaheim Office, 800 S. Brookhurst, Suite 1F, Anaheim, CA 92804. Phone (714) 776-2900.

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May 15 Demonstration of Microsoft Word 3.11. Sponsored by 800 Software and Microsoft. Los Angeles Hyatt Regency, 711 South Hope Street. Call 800 Software, (213) 820-8009 for more information.

May 16 Computer Swap. Orange County Fairgrounds, Costa Mesa. Call Microshows at 1-800-433-7469, or outside California at (415) 340-9114 for information.

May 16-17 Computer Sellathon and Expo. Shrine Auditorium, Los Angeles. Call BW&A Promotions, (818) 905-5476 for information.

May 20-22 Computer & Business Equipment Showcase. Anaheim Convention Center. Call The Interface Group, (714) 476-2300 for information.

May 30-June 1 Fourth Annual ShowBiz Expo. Los Angeles Convention Center. Call (213) 668-1811 for information.

May 30 Ventura Computer Show. Ventura County Fairgrounds. Call Golden Gate Shows, (415) 388-8893 for information.

June 13 Computer Swap. LA County fairgrounds, Pomona. Call (800) 252-SWAP for information.

June 24-26 Computer Trade Show. Sponsored by BW&A Productions and MicroTimes. Shrine Auditorium, Los Angeles. Call BW&A Promotions, (818) 905-5476 for information.

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News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

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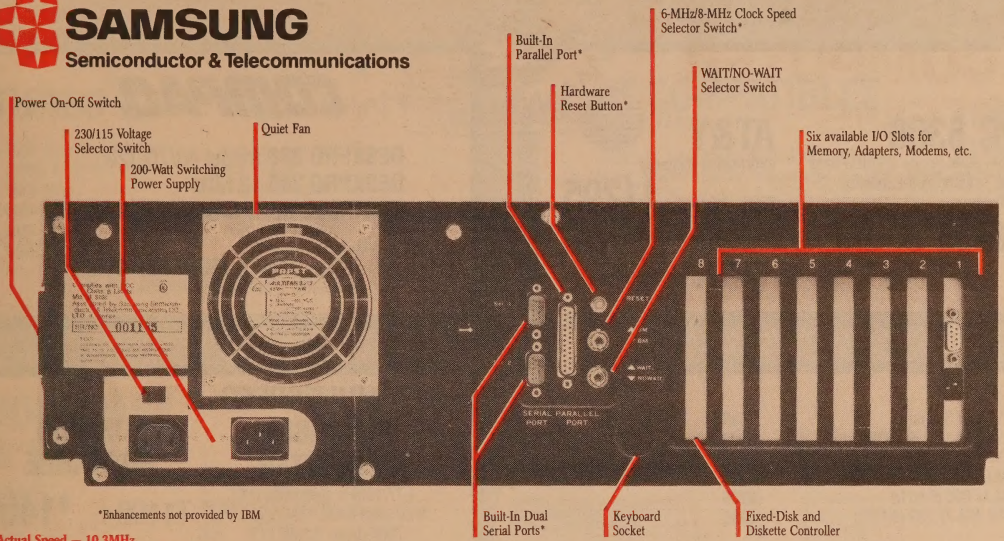

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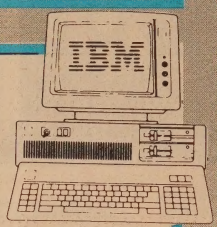

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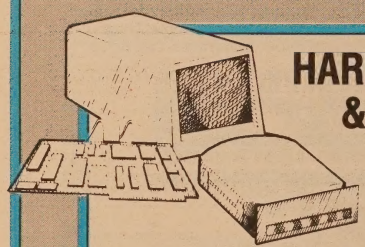

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Irate dBASEr Challenges Osborne

This is in reply to the interview which you conducted with Adam Osborne in the April '87 *MicroTimes*.

We are a modest-sized software development firm located in central Los Angeles. We have published four commercial programs within the past 18 months; they mostly tend to be oriented along the same lines, i.e. for small businesses. Most of our programming is done in compiled *dBASE*.

Mr. Osborne has a reputation for having promoted the microcomputer industry, and deservedly so. The Osborne was a true innovation and the man must be given fair credit for the rapid growth of the industry which followed the introduction of that machine, in spite of its plastic case and painful display.

He shows his ignorance and rudeness, however, in describing *dBASE III* as a "crummy" language. Aside from the fact that *dBASE* has now sold more copies than any other language except BASIC, it is also the standard for performing plain, ordinary WORK in the business world. (Maybe Adam should try that some time? He might gain a different perspective!) I don't have statistics available, but I strongly suspect that more small businesses now use *dBASE III* than anything else. If so, then this alone makes it the people's choice.

At any rate, we at American Business Programs, (213) 660-8275, take strong exception to Mr. Osborne's callous remarks and insensitive attitude. For this reason, and on behalf of my colleagues and myself, not to mention *dBASE* programmers everywhere, I would like to challenge Mr. Osborne to put his money where his mouth is. We will compare the efficiency of any set of routines written in *dBASE*, designed to perform business functions, against those written in the language of his choice. Let an independent board of qualified reviewers, appointed by *MicroTimes*, decide the winner. (I will personally stake $1,000 on the wager, and suspect there may be others who might be interested in becoming involved.)

John Fremont
American Business Programs
Los Angeles

Osborne Replies

In response to your letter from John Fremont, I am pausing long enough from preparing a database program to be used by our Customer Service Department to take John Fremont up on his challenge. Within the next week or two we will send you six routines for Mr. Fremont to encode more efficiently, if he can, using *dBASE III*. When he sees the results I expect he will switch to *VP-Info*.

Adam Osborne
CEO, Paperback Software International
Berkeley

Stay tuned, readers. We'll keep you posted on this impending Battle Of The Databases ...

—eds.

Another Businessman For Milburn

My colleagues in our computer-fortified investment underwriting firm join me in complimenting you for the recent appointment of Ken Milburn as a Contributing Editor.

His concise writing style and candid opinions add grist to your faithful readership. Beyond that is a touch of subtle humor. Who knows—Ken Milburn may become the Ben Franklin of our time with his charming "a keystroke saved is a few more pennies earned"?

James R. Corcoran, Jr.
Senior Partner
Boudreau & Associates
Palo Alto

Gee, we kinda like him too ...

—eds.

MicroTimes, The Entrepreneur's Friend...

This is simply to thank *MicroTimes* for the mention you gave to our new product, the THiNgi Computer Copyholder, in your October 1986 issue.

Especially for a small company introducing a new product, such mentions provide a valuable promotional boost, and we appreciate the consideration you gave us.

We received a couple of dozen inquiries, several leading to orders, as a direct result of the mention ... which can't be bad!

Sincere thanks.

Steve A. Jackson
Sum-Pro International Inc.
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Friendly UNIX. Honest.

To help out Eugene Katz (Letters, March 1987) regarding UNIX [Mr. Katz was having problems understanding the significance of Jan Lewis' **!chmod go + wx / uh / 31 / maddog / unixvs*.compars.readme**]: "chmod" is a UNIX command, "go + wx" is an option to that command; the rest of Jan's "command" is in fact a file name from a long way outside the user's current directory. I have seen quite a few things in this world that would seem "user-hostile" if the person describing it uses the method Jan Lewis used in her column—giving a command with a ridiculously long file name as if it too is part of the command.

The option of being able to use a command on a faraway file is a good option, and computers are supposed to be giving us options. I see that performing an operation on a file outside the directory like this has just been added to DOS; DOS has been steadily adding UNIX features like this. Maybe eventually DOS will be able to match UNIX feature for feature, but if you want those features, why wait?

UNIX has often been described badly to make it seem hostile—ironically often even by its promoters, who are usually dyed-in-the-wool computer crazies who feel they'll lose prestige if what they know seems too easy to learn. But UNIX can be learned *and* remembered if you get a manual which doesn't try to confuse but shows you how to use it. I've written one—*The Minimal Manual*—and it'll be out in a few months from Computer Science Press. My approach to UNIX is as a writer trying to help you use it. My book tells you that you don't have to be a programmer to learn UNIX—you don't have to be a plumber to take a shower.

Jim Moore
Santa Cruz

Mr. Moore's advice has been passed along to the mystified Mr. Katz, who was last seen poring over UNIX For People *while awaiting Mr. Moore's book.*

CORRECTION

We recently published a review of a program called *Handwriting Analyst*. Unfortunately, we printed an obsolete phone number for its publisher, Career Information and Software Associates in Berkeley. CIASA's correct phone number is (415)644-2771. Marilyn Maze of CIASA, who brought this matter to our attention, hastens to add that the program is now available in versions for Apple II and IBM.

Also, it was recently brought to our attention that a Buyers Guide listing in our December 1986 issue incorrectly listed the price of *Comic Strip Factory*, a Macintosh software product, as $9.95, when the price is in fact $99.95. (For further information about *Comic Strip Factory*, call 800/328-0184.)

We apologize for any inconvenience caused by these oversights.

—eds.

Letters are heartily encouraged. Send electronic mail to **microx** *on The WELL, (415) 332-6106. Send US Mail to 5951 Canning Street, Oakland, CA 94609. Please include your real name and the city where you live. Anonymous letters will not be printed.*

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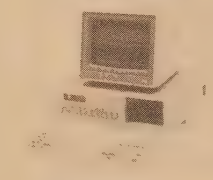

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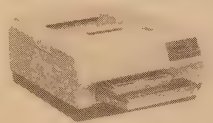

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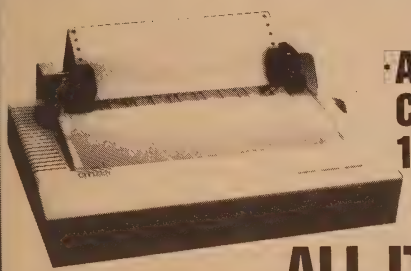

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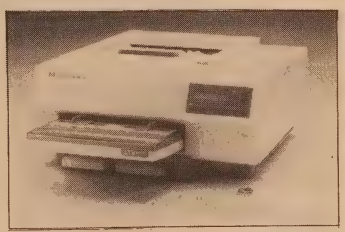

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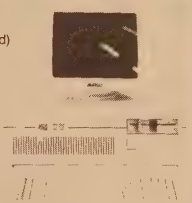

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BUT JAN LEWIS SAYS . . .

Microsoft Heralds Age Of CD-ROM

Microsoft has twice made its contribution to CD-ROM, first with CD-ROM extensions and now with Microsoft Bookshelf, a software package consisting of 10 reference works including the American Heritage Dictionary, Chicago Manual of Style, Roget's Thesaurus, The World Almanac, and Business Information Sources, all on a CD-ROM disk. With the bundling of Bookshelf and Amdek Laserdrive-1 for $1,000, Microsoft has plunged into CD-ROM product, where CD-ROM marketing director Carl Stork says the water is fine.

Microsoft's Carl Stork: "You're starting to see CD-ROM become a much more commercial medium. People are selling their information on a commercial basis, using CD-ROM as a distribution channel."

How has the CD-ROM industry changed between the first and second Microsoft CD-ROM conferences?
In March of 1986 CD-ROM was, for many people, a buzzword—something that had great potential. People really needed hands-on experience with it; there wasn't any real product yet. People had never seen their own data on CD-ROM. That really was the year of the prototype.

In 1987 we see much, much more of the year of the product. People are saying, "Okay, we know what CD-ROM is, and we know that it's useful, and now we're going to really apply it."

I think you're going to see CD-ROM coming to fairly widespread use in what I'll call captive applications in 1987. A captive application is used to deliver information to either internal sales or an internal organization or to a captive customer base, like dealers or agents. I think that is a large part of what the CD-ROM marketplace in 1987 will be.

The second thing that's happening in 1987 is that you're starting to see CD-ROM become a much more commercial medium. What people are actually selling is their information on a commercial basis, using CD-ROM as a distribution channel. But I think that's going to be smaller, compared to that captive or internal market.

How does Microsoft see itself involved in the CD-ROM arena?
We're involved in really a couple different ways. The first is that we're involved with the systems software in the case of a system application that sits on top of the computers—through the MS-DOS and ROM extension.

The second thing that we're doing publicly right now is the Microsoft Bookshelf product, and that's a real application of CD-ROM; it's something that's very general-purpose. Virtually anyone using the computer for writing could use this product. And we think it's an example of a very powerful horizontal application that will sell a lot of drives, and will really get CD-ROM out into the hands of the users. And it's our intention to do other CD-ROM products like Microsoft Bookshelf, although we don't have any we're prepared to announce at this point.

The third area in which we're active is developing software tools. Our major interest in CD-ROM is on the longer term, from multimedia application of CD-ROM technology, applications that integrate not just data but audio and video.

Does this include graphics? Are we talking full-motion video?
Quite possibly full-motion video as well. We found the CD-I chips from RCA quite exciting. But in fact, personally, not only are they quite exciting, I think they are what makes multimedia applications really compelling ... the type of things that make me say, "Yeah, I want one in my home." I mean, my kids are going to like this. It's really a good tool.

What do you perceive as the market for your CD-ROM offerings?
We are a product company, so we try to design for broad classes of users. And the CD-ROM products are no exception. Our intention with Microsoft Bookshelf, for example, is that the product can be used by anyone who uses a PC for writing, which our studies say are 91 percent of all PC owners. That's a good statistic.

What prompted you to bundle the CD-ROM extensions and Bookshelf with the Amdek Laserdrive-1? What other bundling arrangements do you have planned?

"We think Bookshelf is an example of a very powerful horizontal application that will sell a lot of drives and really get CD-ROM out into the hands of the users."

The reason we bundled Bookshelf with the Amdek Laserdrive-1 is simply that we have a very basic marketing problem with this product, and that is, there's not a very large installed base for CD-ROM drives. And the people aren't used to going to computer stores to buy any CD-ROMs, so putting Bookshelf together with the Amdek Laserdrive and the MS-DOS and ROM extension—it's the single-solution concept. The user wants to have that capability—to go to the computer store and get everything you need to get up and running in one easy purchase. So a bundle of this sort is one of the key things that our market plans early on.

We don't have any other bundles right now, but even now, the Amdek Laserdrive-1 is the only drive that is going to be used in retail. But, at this point, nearly everyone else is manufacturing drives and trying to sell them on an OEM basis or large quantities to corporate customers. And we certainly are interested in OEM customization of Microsoft Bookshelf to large corporations for their internal use.

Is there an issue at all of compatibility with other players that may come out into the market, other CD-ROM players?
We don't think that there will be any issue. Bookshelf will work with any IBM-compatible system that has MS-DOS with the CD-ROM extension.

Our strategy is to sell to drive manufacturers, and we're hoping that most drive manufacturers will choose to include the MS-DOS CD-ROM extensions with the drives that they sell that are hooked up with the IBM PC and compatibles. That's very important for all participants in the CD-ROM business. We want to be able to assume there is a standard user environment out there—the same way that Lotus, when they sell a copy of 1-2-3, they put it on an MS-DOS disk and MS-DOS is out there. They don't worry about getting MS-DOS out of the end user. They simply want to get it to the computer—it's assumed.

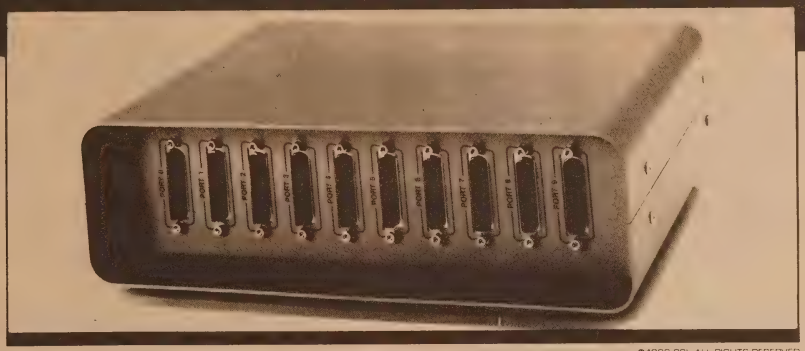
CD-ROM business needs to make that kind of assumption in a bad way. The developers don't want and shouldn't be expected to have to worry about providing system software problems with the CD-ROM drive. And again, we think that Microsoft Bookshelf will help. We can tell people, "Hey, the water's okay, comes on in."

We're excited because we think that CD-ROM is going to let us reach a new level of users in the office,

continued on page 97

Jan Lewis is a well-known industry analyst and president of the Palo Alto Research Group, a consulting firm for the microcomputer industry. This article has been reprinted with permission from Computer Insider, *PARG's newsletter.*

PC PORT CONTROLLER



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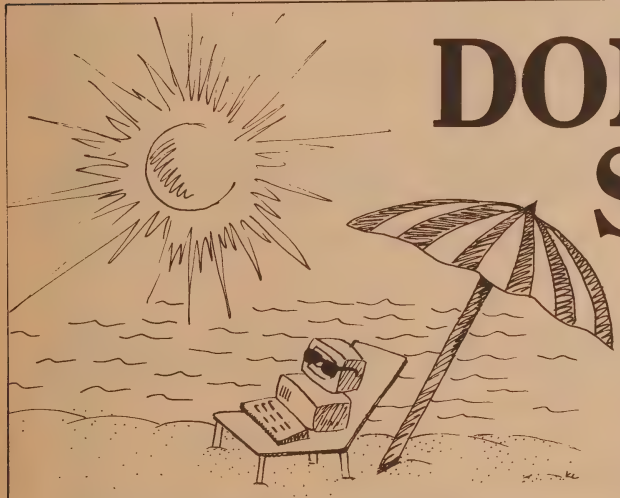

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Aldus Distribution Agreements

Aldus Corp. (Seattle, WA) has announced a worldwide software distribution agreement with IBM, under which IBM will include *PageMaker* software as part of its new SolutionPacs for personal publishing. In addition, Aldus has initiated a new corporate support and training program. Aldus announced a second, exclusive, distribution agreement with Microamerica, marking the first time the company has worked with a North American distributor, and the first time that Microamerica has distributed a software line.

Apple Computer-Northern Telecom Networking

Apple Computer (Cupertino, CA) has implemented the second phase of a strategic alliance program with Northern Telecom, and has announced four new networking capabilities: linking separate AppleTalk networks; "dial-up" remote use of LaserWriter printers; "one step" file transfer and conversion; and Memorybank 485, a new 485 MB storage subsystem for use with the Macintosh family.

Autodesk Update

Autodesk, Inc. (Sausalito, CA) has a new driver update disk for *AutoCAD*, which will be included in all future shipments of version 2.52 of that program. Upgrade for current owners is $80.

Autodesk has also reached a settlement with three Fortune 1000 companies who produced illegal copies of *AutoCAD* for in-house use. The companies agreed to settle out of court, to pay penalties for undisclosed amounts, and to correct abuses or infringements in return for guaranteed anonymity. Autodesk has also finalized its acquisition of Cadetron, Inc. (Atlanta, GA).

Autographix/Compugraphic Workstations

Autographix (Waltham, MA) and Compugraphic Corp. (Wilmington, MA) jointly demonstrated their new IBM PC-based presentation graphics workstations at NCGA in Philadelphia. The systems, fully configured with film recorders, printers and Autographix Instant Capture System, can be used to create 35mm slides, overhead transparencies, color prints and black-and-white copy.

Bizcomp Cuts Modem Prices

Bizcomp Corp. (Sunnyvale, CA) has reduced the price of its NonRisk modems by up to $100. The IntelliModem XT and ST models are now $449.

News From Brøderbund

Brøderbund Software (San Rafael, CA) announced that Edmund Auer will join the company as senior vice president and chief operating officer. Prior to joining Brøderbund, Auer was president of CBS International Publishing in New York and CBS Software in Greenwich, CT.

Brøderbund also announced an affiliated label agreement with MacroMind, Inc., a Chicago-based publisher of software for the Macintosh computer. The agreement involves *VideoWorks II* and future *VideoWorks* products.

Franklin Drops Suit

Central Point Software (Portland, OR) has announced that Franklin Computer Corp. has dropped its motion for a preliminary injunction against sales of the Laser 128 personal computer. Franklin had charged that the Laser 128's boot code infringed on Franklin's boot code. As part of the court order, Franklin has agreed not to contest the new boot code in the Laser 128 in any forum, including US Customs.

Microsoft, Brøderbund Dominate SPA Awards

Fluegelman Award To Fido Author

At a gala black-tie event emceed by Douglas Adams and entertained by Robin Williams, the Software Publishers Association presented its 1986 Excellence In Software Awards on March 26. Commented executive director Ken Wasch, "The winners are truly representative of the exemplary products of this diverse industry."

Microsoft and Brøderbund were the big winners, Microsoft for *Works* and the Macintosh *Flight Simulator*, Brøderbund for *The Toy Shop* and *Where In The USA Is Carmen Sandiego*. Springboard Software also won two awards for *The Newsroom Pro*.

At the same ceremony, the first Andrew Fluegelman Award was presented to Tom Jennings, president of Fido Software and author of its popular BBS software *Fido/Fidonet*. Founded in honor of the late Andrew Fluegelman, creator of the Freeware™ marketing concept, the award recognizes a software programmer who is deemed to have made a substantial and innovative contribution to the personal computer community with commercial, shareware, or public-domain software. Jennings was chosen from a field of finalists which included Gary Pope for *DESQview*, Jeff Harbers for *Excel*, Scott Watson for *Red Ryder*, Jim Anderson for *Smalltalk/V*, and Michael Pflaumer for Centram's *TOPS*.

MicroTimes would like to extend hearty congratulations to this year's award winners.

SPA Excellence In Software Award Winners

Best Software Program
Works—Microsoft

Best Entertainment
Chessmaster 2000—Software Toolworks

Best Business Productivity Tool
Works—Microsoft

Best Creativity Program
The Toy Shop—Brøderbund Software and Active Arts

Best General Education Program
Where In The USA Is Carmen Sandiego?—Brøderbund Software

Best Home Productivity Program
The Newsroom Pro—Springboard Software

Best Simulation Program
Mean 18 Ultimate Golf—Accolade, Inc., and Microsmiths, Inc.

Best Utility Program
Referee—Persoft, Inc., and Ed Harris

Best Secondary School Education Program
Homeworker—Davidson & Associates

Best Programming Tool
Dan Bricklin's Demo Program—Software Garden and Dan Bricklin

Best Primary School Education Program
Where In The USA Is Carmen Sandiego—Brøderbund Software

Best Concept
The Toy Shop—Brøderbund Software

Best Technical Achievement
GEOS 1.2—Berkeley Softworks

Best Sound
The Music Studio (Amiga)—Activision and R. Parfitt of Audio Light

Best Graphics (16 bit)
Defender Of The Crown—Mindscape and Master Designer Software

Best Graphics (8 bit)
Airheart—Brøderbund Software and Dan Gorlin Productions

Best User Interface
Lotus HAL—Lotus Development Corp., B. Gross, L. Gross

Best New Use of a Computer
The Toy Shop—Brøderbund Software and Active Arts

Best Adaptation to a New Computer Format
Flight Simulator (Macintosh)—Microsoft and Sublogic

Best New Version of a Program
Deluxe Paint II—Electronic Arts and Dan Silva

Best Documentation/Manual
The Newsroom Pro—Springboard Software

Best Software Packaging
Leather Goddesses Of Phobos—Infocom and Steve Meretzky

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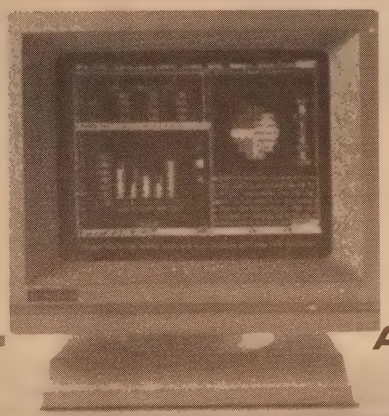

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Multitech 700 (8088-2 2 Dr. 640K, Monitor incl.)	1050
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MonoChrome Graphics Card	95
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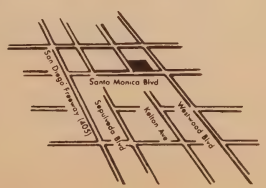
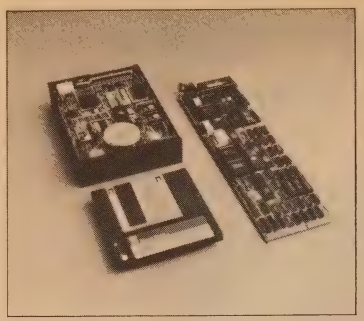
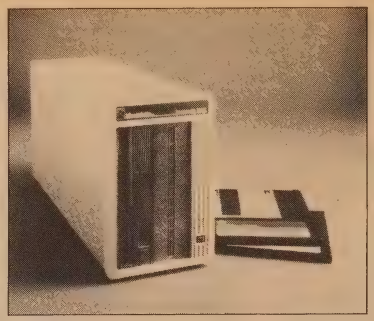






Mountain's Bernoulli Drives

Mountain Computer (408/438-6650) introduced its first Bernoulli offerings, a line of internal and external drives using 5 1/4 inch 20 MB removable cartridges. The new Micro Bernoulli single cartridge drives are compatible with most IBM PCs and clones, and fit into the unit's half-height drive slots. External models are designed to fit alongside the monitor on top of the computer. Average seek time is 40 ms. Pricing ranges from $2,195 to $2,395.

Mountain's new Bernoulli drives offer compact, efficient storage.

New VP At Digital Research

Digital Research (Monterey, CA) has appointed Marily Bohl as vice president of product development. For the past 13 years, Ms. Bohl has been with IBM as manager of advanced database development.

IBM Bars Matsushita Computers From US

IBM has stopped Matsushita Electric Industries of Japan from exporting to the US an AT compatible computer which allegedly infringes on IBM's BIOS copyright. The Japanese company is expected to not only withdraw all remaining machines from the market, but to pay IBM nearly $2 million as recompense.

Letraset Launches Desktop Publishing Campaign

Letraset USA (Paramus NJ), marketer of *Ready, Set, Go! 3* desktop publisher for the Macintosh, is seriously attempting to become a major competitor in the desktop publishing market. Letraset is competing directly with Aldus through an ad campaign telling users that if they send in the front cover of the *PageMaker* User's Manual, they will receive *Ready, Set, Go! 3*. And a sweepstakes, to continue through July 1, offers an '87 Porsche as the grand prize (other prizes include a Mac Plus, Radius monitors, Data Frame external hard disk drives and copies of *Ready, Set, Go! 3*).

Microsoft Plans for New Generation

Microsoft Corp. (Redmond, WA) has implemented a company strategy that revolves around IBM's new product announcements. Five fronts guarantee a steady progression path for developers and users alike:

1) to develop a new operating system, MS OS/2, that takes full advantage of the 80286/386 microprocessors;
2) to ensure that the installed base of applications running under MS-DOS will also run under the NS OS/2 in the "compatibility box";
3) to continue enhancements and product development for MS-DOS;
4) to provide a new-generation graphical interface;
5) to provide sophisticated new-generation networking compatible with current Microsoft networks.

Very Competitive Bootleg DOS Halted

Microsoft (Redmond, WA) filed a copyright infringement action in the Northern California Federal District Court, and obtained a preliminary injunction prohibiting three Taiwanese companies and a California company from copying, importing, disseminating, or distributing Falcon MS-DOS. The ruling follows Microsoft's seizure of approximately 50,000 copies of Falcon MS-DOS imported into the US since the beginning of 1987. (The first 15,000 copies of the illegal software were confiscated in a Bay Area raid on February 15). Manufactured in Taiwan by VCCP (Very Competitive Computer Products Corp.) and Evergood Computer International Corp., both Taiwanese firms, the infringing product was imported into the US by (or through) Wetex International (USA) Corp., a California firm.

Another Mindscape Acquisition

Mindscape, Inc. (Northbrook, IL) announced an agreement in principle with Holt, Rinehart and Winston, Inc., to purchase most of its HRW educational software, formerly known as CBS Interactive Learning. The proposed transaction marks Mindscape's third acquisition within the last nine months and makes the company one of the largest educational software publishers in the US.

The popular Certificate Maker is now available in a Macintosh version.

Certificate Maker for the Mac

Springboard Software, Inc. (612/944-3915) has released a Macintosh version of its highly popular *Certificate Maker* and *Certificate Library Volume 1*. Together, these programs provide the user with more than 300 pre-designed certificates, awards, diplomas and licenses covering everything from academics, business, and athletic achievements to activities involving family and friends. ($59.95)

More Look And Feel

It seems that Mosaic Software (Cambridge, MA), in preparing its defenses against the Lotus Development suit, has received a favorable decision from an Atlanta District Court, which ruled that "copyright protection of a computer program does not extend to screen displays generated by the program."

This decision was made in the Digital Communication Associates versus SoftKlone Distributing Corp. suit. In the SoftKlone case, the court also ruled that although the defendants infringed the plaintiff's copyrighted "main menu" screen, the defendants were free to design "a program which accepted all of the same commands utilized" in the plaintiff's program.

Nestar Intelligent Access Acquisition

Nestar Systems, Inc. (Mountain View, CA), a subsidiary of DSC Communications Corp., announced the acquisition of Intelligent Access. The terms were not disclosed. Together, the companies will offer users an expanded group of productivity tools and innovative processing methods to meet increasing PC disk product and networking demands. Included will be an intelligent token-ring based network interface, a high performance token-ring local area network for small or entry-level users, and an intelligent disk controller to allow for parallel processing on an IBM or compatible PC.

Okidata Microline Rebate

Okidata (Mt. Laurel, NJ) has announced a $100 rebate wih the purchase of a Microline 292 or wide carriage Microline 293 dot matrix printer.

New COO At Samna

Samna Corp. (Atlanta, GA) has named Marc Bailey president and COO. He comes to Samna from Informatics Legal Systems, a Phoenix-based developer of software for law firms.

Silicon Merger

Silicon Compilers, Inc. (San Jose, CA) and Silicon Design Labs (Liberty Corner, NJ) announced that their boards of directors have approved a merger agreement. The new company will be called Silicon Compiler Systems Corp.

EXTRA! EXTRA!

Computers

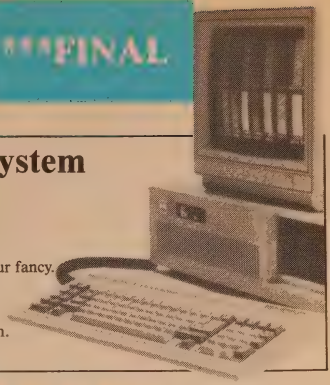
FINAL

KAYPRO Announces Turnkey Desktop Publishing System Extra! Extra! Has Arrived

By K.C. Wilson
Computer Applications

Solana Beach—In a major announcement, designed to shake up the rest of the computing industry, Kaypro Corporation has announced its new turnkey desktop publishing system, entitled "Extra! Extra!", is now available for purchase. The system, available exclusively from **Computer Applications of Garden Grove, CA**, comes complete with everything you need to begin your own newsletter, magazine, or whatever tickles your fancy. (see accompanying story).

For other applications of this outstanding desktop publishing package, call Computer Applications at 714-891-2001 and ask to speak to reporter K.C. Wilson.



$10,000 Valued System Sells For Just $8495*

Other systems with less retail for 10K or more

By Oli Thordarson
Computer Applications

Garden Grove—The outstandingly valued Kaypro Extra! Extra! Desktop Turnkey Publishing System is selling for just $8495 at the local Computer Applications computer store. Normally, similar packages sell for $10,000 or more, yet don't give you nearly the same features.

Included in your system are:

- Kaypro 286i Model C
- 40 MB Hard Drive
- EGA HI-RES Graphics Board
- Monochrome EGA Monitor
- 3-button Mouse
- Kaypro Pageprinter II w/1.2 MB Memory (Full Graphics Laser Printer
- Xerox Ventura Publisher
- GEM Paint
- Wordstar Release 4 (Mail Merge/Spellcheck)
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KAYPRO Challenges You To Shop & Compare

By I'll Take It
Challenge Associates

Solana Beach—In a bold move, KAYPRO Corporation of Solana Beach, CA challenges all computer end users to shop and compare their new Kaypro machines against other leading brands in the market. They are confident that after shopping around, the user will make KAYPRO products their choice. (see comparison chart below).

Kaypro:	Others:
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2. **IBM Compatibility Guaranteed*** Only Kaypro guarantees IBM compatibility—and gives you three times the IBM standard memory—with the KAYPRO PC's 768KB RAM.	2. ?
3. **12-Month Warranty** A one year parts and labor warranty is standard.	3. ?
4. **Included Software: WordStar . . . Plus** Every KAYPRO PC comes standard with WordStar, MS-DOS 3.2, GW BASIC, K-Desk, Poly Windows, CorrectStar, MailMerge, and more.	4. ?
5. **Two Speeds For Fast Processing** Zip along at 4.77 MHz—or zoom with 8.0 MHz	5. ?
6. **Both IBM Video Standards . . . Plus** Get maximum software compatibility with IBM monochrome and CGA video standards—and Hercules emulation—built in.	6. ?
7. **IBM PC AT-style Keyboard** Just like the expensive IBM PC AT—complete with tamper-proof keylock.	7. ?
8. **Made in the USA** Few IBM PC or XT compatibles can make this claim.	8. ?

KAYPRO 286i AT to Sell for $2995

By What A. Deal
Computer Applications

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Kaypro 386 — Great Value At Only $5995

Power Users Can Now Afford The Best

By I. Cant Believeit
Applications Programmer

Southern California—Rocking the computing industry, Computer Applications of Garden Grove, CA has announced that now power users can afford the machine they've been waiting for, the KAYPRO 386. For just under 6 thousand dollars, the 386 comes with **60 MB Priam Hard Drive, EGA Monitor, Auto switch EGA card, and 512K memory (expandable).**

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The Inside Story

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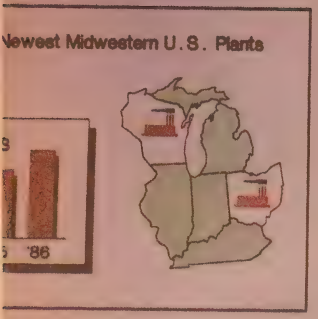
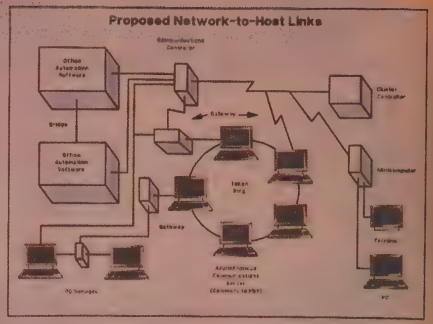
* For the first 90 days after purchase, Kaypro assures that any major IBM-compatible business software will run on the Kaypro PC or they will grant a trade-in credit toward the purchase of an IBM PC. Trade-in for IBM PC is available only through original Kaypro dealer and IBM suggested-retail price applies.





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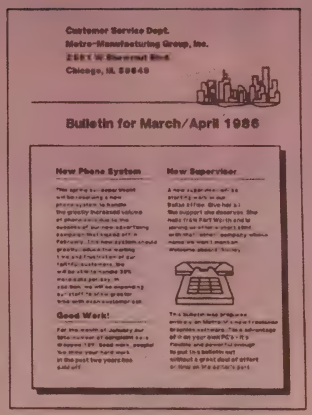
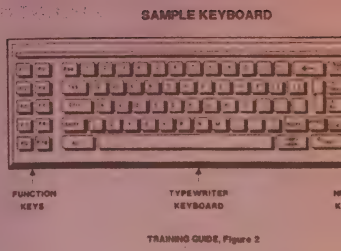
See Next Page For The **Softsel** Dealer Nearest You!





TRAINING GUIDE, Figure 2

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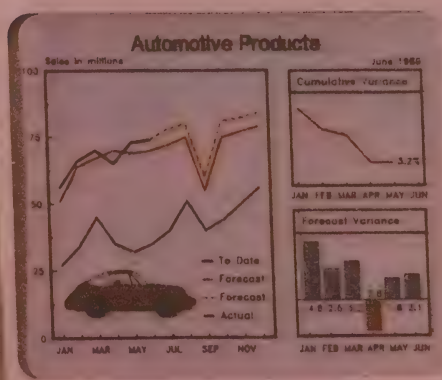

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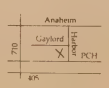

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Look For Our Next Give Away

A Slice Of The Apple For Tecmar

Tecmar, Inc. (Solon, OH) formed a new division dedicated to developing enhancement products for Apple Macintosh computers. The division director will be M. Della Torre.

DOS 3.2 On Toshiba

Toshiba America, Inc. (Irvine, CA) announced that MS-DOS 3.20 is now shipping with the T1100 PLUS and T3100 portable personal computers.

Univation Puts Turbo Ventura Publisher On Lifeboat

Univation, Inc. (Milpitas, CA) announced that Lifeboat Associates (Tarrytown, NY) will distribute its *Turbo Ventura Publisher* desktop publishing package. The estimated value of the agreement is expected to exceed $1 million over the next 18 months.

US Robotics Sues Hayes and Bizcomp

US Robotics (Skokie, IL) has reported that a federal court refused to dismiss anti-trust and other charges filed last November against Hayes Microcomputer Products, Inc. (Norcross, GA) and Business Computer Corp. (Bizcomp-Sunnyvale, CA). In a March 11 order, the US District Court of Northern California ruled that US Robotics had alleged sufficient facts to sustain its action against both Hayes and Bizcomp, which means that US Robotics now has the opportunity for a trial. The suit seeks to have two US patents declared invalid or unenforceable. Both patents, one assigned to Bizcomp, the other to Hayes, claim as inventions certain aspects of the escape signal used to control PC modems.

Video Seven To Use GSS DGIS

Video Seven (Fremont, CA) has announced a joint agreement with Graphic Software Systems (Beaverton, OR) to incorporate its Direct Graphics Interface Standard (DGIS) into Video Seven's new high performance, high resolution display board.

Cordata-Philips Agreement Shaky

Cordata (Thousand Oaks, CA) claims that Philips Information Systems Ltd. is in violation of an OEM agreement signed between the companies in 1984. Philips, a Canadian-based subsidiary of the Dutch conglomerate N.V. Philips, has been paying royalties to Cordata under terms that granted Philips a license to manufacture Cordata-designed single-user PCs based on the Intel 8088 microprocessor. According to H.B. Im, CEO of Cordata, Philips notified Cordata that it ceased paying these monthly royalties in January 1987, yet it continues to manufacture computers based on Cordata technology.

Product Announcements

RECREATIONAL/ EDUCATIONAL

New From Accolade

Accolade (408/446-5757) has released *Accolade's Comics*, the first interactive comic book for the C64/128 and Apple II family of computers. Developed by Distinctive Software of Vancouver, CANADA, the Comics are contained on three disks, and feature two distinct themes with dozens of major and minor story lines that incorporate eight arcade-like games. ($39.95 and $44.95, respectively).

Accolade has also released *Power* under its mid-priced line of entertainment software, *Advantage*. *Power* is a 22nd-century war game where the player, pitted against the hostile Demoid Empire, must save Earth from a terrorist attack. The latest release is for C64/128 computers. ($14.95)

Guderian

Avalon Hill Game Company (301/254-9200) introduced *Guderian*, a game that allows microcomputer generals to command German Panzers and Russian T-34 tanks in simulated WWII conflict on the Eastern Front. Named after the German commander general who designed the Blitzkrieg tactics that revolutionized armor tactics, *Guderian* simulations run using a joystick. Players can select multi-player or solitaire mode. For the Atari 8-bit, Commodore 64, and Apple II computer families. ($30)

The American Investor

Britannica Software (415/546-1866) has released *The American Investor*, a microcomputer simulation that uses actual historical market data so that investors become confident and comfortable with professional investment techniques. For IBM micros. ($149.95)

Sailing Through Story Problems

DLM Teaching Resources (214/248-6300) introduced a new math software program, *Sailing*

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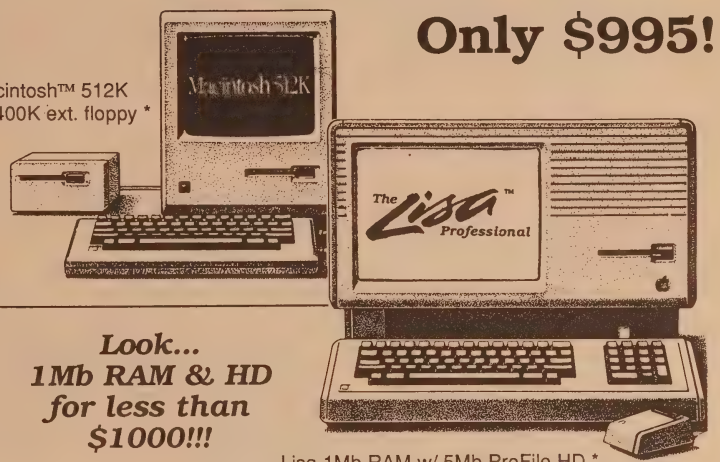

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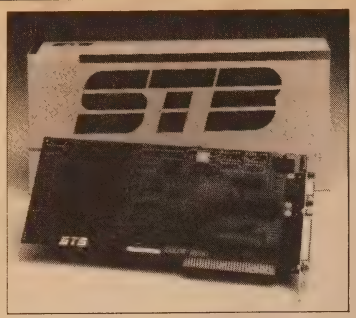

The Color/Mono video adapter offers increased display flexibility.

Color/Mono Video Adapter From STB Systems

STB Systems Inc., (214/234-8750) has introduced the Color/Mono video adapter. The dual purpose adapter supports CGA modes as well as MDA modes, which are switch selectable. In addition, the Color/Mono adapter provides a parallel printer port and an optional, battery-operated clock/calendar. ($149)

Through Story Problems, for the Apple II computer family. This software helps students solve math story problems, long recognized as pitfalls on national assessment tests. Designed around a lively pirate theme that appeals to both boys and girls, the two-disk program is organized into 12 content levels and includes map and chart reading and a section on working with money. As a bonus feature, the program has a built-in calculator. ($46)

New From Electronic Arts

Electronic Arts (415/571-7171) has released five Sierra On-Line software games under its affiliated labels agreement: *The King's Quest Trilogy*, *Space Quest*, and *Winnie The Pooh In The Hundred Acre Wood*. *King's Quest* and its sequels, *Romancing Thee Throne* and *To Heir Is Human*, make up the best selling trilogy in 3-D animated fantasy adventure games. Each program carries a suggested retail price of $49.95. *Space Quest*, a science fiction parody game, also carries a suggested retail price of $49.95, and *Winnie The Pooh In The Hundred Acre Wood* is a children's educational product with a retail value of $24.95.

Electronic Arts has also released the Apple II sequel to *The Bard's Tale*, *The Bard's Tale II—The Destiny Knight*. The Destiny Knight is 50 percent larger in code size and more challenging than its predecessor. *The Bard's Tale II* features an expanded dominion for exploration and adventure, and incorporates many advanced combat and magic systems. Also available now is a cluebook ($12.95) for assisting players through the various dungeons. The sequel game, for the Apple II family, is $44.95.

A third release from Electronic Arts is *Ogre*, a strategy game from Origin Systems, for the IBM PC and compatibles. *Ogre*, like *Autoduel* before it, is a computer-enhanced version of a classic strategy board game. It pits one or two players against one another—one as an incredible solo-fighting Cybertank, the other as a more conventional force of infantry, armor units and command posts. ($39.95). Also new are Commodore 64/128 versions of *World Tour Golf*, designed for up to four players with options such as handicaps, strength variations, club skills and hook and slice tendencies incorporated into play. ($34.95) Also for the Commodore 64/128 is a new version of *Ultima I*, from the *Ultima* adventure game series. The graphics and animation have been significantly improved in this medieval adventure, in which the player is an adventurer summoned to the realm of Sosaria. ($39.95)

Epyx Releases

Epyx, Inc. (415/366-0606) has released *Sub Battle Simulator* for the IBM PC and compatibles. The objective is to command a WWII submarine in either the Atlantic or Pacific, complete the assigned mission, survive, and return to home base. There are 24 American and 36 German missions to choose from, and all are based on historical data.

Epyx has also released *Destroyer*, an authentic and detailed combat simulation set aboard a fully-armed Fletcher Class US Naval Destroyer. The overall objective is to accomplish a selected mission without being sunk. For the C64/128 and Apple II family currently, and for IBM micros and compatibles late this year.

Epyx has also debuted *World Karate Championship*, which transports players to eight international locations for karate competitions against the computer or another player. Tougher and tougher opponents, from white to black belt, are fought against a backdrop of the Statue of Liberty, Mt. Fuji in Japan, or the famous Opera House in Sydney, Australia. For the Commodore 64/128, Atari 8-bit machines, and later this year, Apple II and IBM micros.

Starglider For IBM

Firebird (Ramsey, NJ) has released *Starglider* for the IBM PC and compatibles. *Starglider* places the gamer in command of an airborne ground attack vehicle that must ultimately do battle with the almost-invincible starship, the Starglider. ($44.95)

Online Air Warrior

GE Information Systems—GENIE (301/294-5647) has introduced *Air Warrior*, an interactive, aerial combat, multi-player game that can be played with the Apple Macintosh, but will soon be offered for other systems. Up to seven planes are involved in this real-time, on-line air combat game with varying degrees of difficulty.

Bureaucracy

Infocom, Inc. (617/492-6000) has released *Bureaucracy*, the latest adventure from Douglas Adams, author of *The Hitchhiker's Guide To The Galaxy*. This new game puts you in the midst of a bureaucratic muddle so convoluted that you can't help but laugh. Available for the IBM, Apple II. Macintosh, Atari ST, Commodore 128, and Amiga.

Apple II Science Courseware

Prentice Hall, Allyn and Bacon (201/592-2540) have introduced the *Prentice Hall Science Courseware* Series, a complete library of 30 software programs designed to correlate to the life science/biology, earth science, and physical science courses offered at junior and senior high school levels. These 30 programs contain concepts recommended by teachers on the basis of four criteria: the concepts are process-oriented, too big or small to be demonstrated in the lab, very difficult for students to understand, and conceptually suited for computer-aided instruction. Available for the Apple II computer family.

Apple II Math Tutor

Scholastic Software (212/505-3000) has launched *Math Tutor*, a comprehensive set of four math tutorials for the Apple II computer family, designed for grades one through six. It includes programs in addition, subtraction, multiplication and division. The programs give students an introduction to arithmetic operations and concepts and reinforce learning with practice problems. All four *Math Tutor* packages are available in both school ($99.95) and home ($59.95) versions.

New Games From Strategic Simulations

Strategic Simulations, Inc. (415/ 964-1353) has announced that four brand new products and numerous program conversions will be available this spring. *Realms of Darkness* is a first for SSI because a parser has been included to enable the player to talk to people and move objects. Currently available for the Apple II series with a Commodore 64/128 version planned for late May.

Phantasie III—The Wrath of Nikademus is the final confrontation with the Dark Lork Nikademus. New features enhance the game's play, and characters from *Phantasie* and *Phantasie II* can be used. Available for the Apple II series with C 64/128 due in late May.

Battlecruiser uses the same game system as in *Warship*. Gary Grigsby helps you to re-create surface naval engagements from WWI and WWII. For use now on Apple II, C 64/128, and Atari 8-bit computers.

War in the South Pacific is a massive land/sea/air campaign game (with two smaller scenarios included) from Gary Grigsby.

Rebel Charge: The Battle of Chickamauga is the most current of the the Civil War simulations from Chuck Kroegel and Dave Landrey. *Gettysburg: The Turning Point* game system is used but the designers changed the time scale to one hour per phase and included an option to use the regular scale map or a smaller scale map. Available for Apple II, C 64/128, and Atari 8-bit systems by late April.

Due to circumstances beyond SSI's control, *Roadwar 2000* and *Phantasie* conversions for the Mac have been cancelled.

Mac Keyboards From Datadesk

Datadesk International (800/826-5398) has unveiled two high-performance, full-function keyboards for the Apple Mac, the MAC-101/ADB and the Mac-101. Both keyboards use the industry standard 101-key layout, have a full compliment of function keys and are designed to meet the high-speed data input needs of word processing, spreadsheet and desktop publishing applications. The MAC-101/ADB is for the Mac II and SE computers and has a built-in Apple DeskTop Bus connector, which allows for the daisy chaining of up to 16 input devices. The MAC-101 is designed for use with the installed base of Mac computers. ($169.95)

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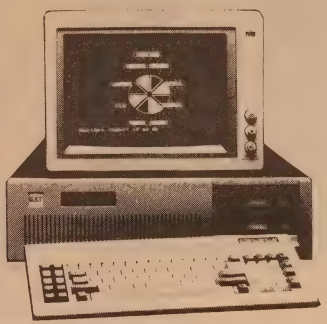

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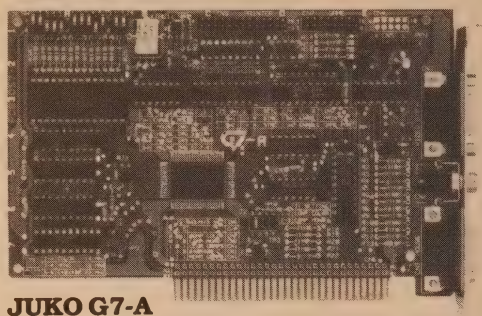

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In *Football* from Sublogic Corp. (217/359-8482), one or two players can enjoy the program that puts you in control of every aspect of the football game. You call the plays, offense, and defense. Choose your own quarterback, receivers, and running backs. An 18-player bench allows substitutions. every receiver, running back, linebacker, and safety has different physical attributes, i.e., speed, power, and catching ability. For the IBM PC, PCjr, or compatible with 256K minimum memory, CGA card and composite-color or RGB monitor. *Football* is available for $39.95.

New Scenery For Flight Simulator And Jet

Scenery Disk #7 is now available for the Commodore 64 and 128 computers and the Apple II computer family. This disk covers the East Coast of the United States in detail, from Washington D.C. through Key West FL. This may be used with both *Flight Simulator II* and *Jet* to greatly expand the user's flying environment. Highly-detailed areas are now available with more generic scenery areas that include enough radio nav-aids and refueling facilities to last a long while. A Space Shuttle is on the launch pad at Cape Canaveral. Details in Washington D. C. include the Washington Monument, White House, Capitol Building, Pentagon, Lincoln Memorial and more. Over 130 airports will challenge the flyer with 12 military airports. 10 ILS approaches and 22 airports with refueling facilities and seven airports that support ATIS. Price is $19.95.

Ant Farm From Sunburst

Sunburst Communications (914/769-5030) has released *Ant Farm*. Students must find the "work stations" of nine ants inside an ant farm. This software encourages students to examine their assumptions using trial and error, as well as teaching them how to identify similar situations and showing them the importance of making projections based on information they have gathered. ($59) For the Apple II family.

APPLE II

The Music Studio And Paintworks Plus

Activision Inc. (415/960-0410) debuted two programs for the Apple IIGS. They include *The Music Studio*, which provides the tools necessary to create a wide variety of compositions, and *Paintworks Plus*, a comprehensive graphics program.

With *The Music Studio*, a built-in sound editor offers attack, decay, sustain and release (ADSR) for fine-tuning volume, note duration and speed. You can channel the computer via the MIDI interface to electronic keyboards and synthesizers.

Paintworks Plus allows users to produce multi-colored graphics with access to 4096 separate colors that are offered by the IIGS; you can also custom design or edit using a broad array of shapes and patterns.

New Programs From Alsoft

Alsoft, Inc. (713/353-4090) offers three programs to help with your Apple computers. The first is *DiskEnsure* that makes backup copies of your files to 400 or 800K disks; the second is *DiskExpress*, a disk optimizer; third is *ProLink*, which allows you to use your *AppleWorks* and other Apple II files on your Mac, or vice versa. Pricing is $39.95 for each product.

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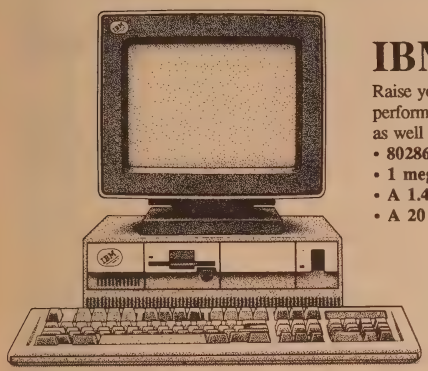

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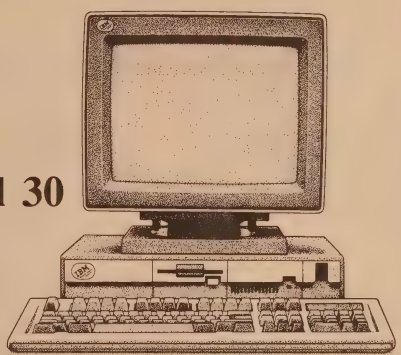

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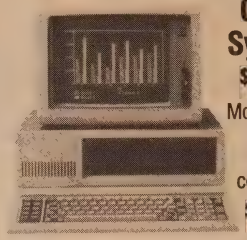

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Enhanced Version Of Instant Pascal

Apple Computer, Inc. (408/996-1010) has announced an enhanced version of Instant Pascal for the Apple II computer family. This is version 1.5 and has been enhanced to support non-Apple printers, as well as to improve performance by supporting faster media, such as UniDisk 3.5, RAM cards and hard disks. Upgrades for current owners are free. The program runs 1½ times faster when operated on an Apple IIGS. ($140) Lifeguard Harbor Software Inc. (617/263-1870) debuted a new software package called LifeGuard for the Apple IIGS that protects computer users from accidental loss of valuable data by providing the ability to recover disk files that have been deleted under ProDOS 16 and ProDOS 8. The program is written entirely in 65816 assembler and uses the Apple IIGS toolbox. It is compatible with all ProDOS disk drives. ($59.95)

ATARI

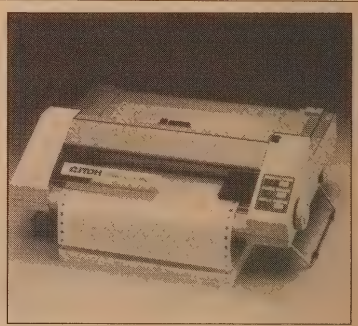
Magic Sac

Data Pacific, Inc., (303/733-8158) has announced the fourth enhancement to its Magic Sac product, and a printer driver for the Epson printer series. The Magic Sac enables the Atari ST to use Macintosh software. Revision 4.0 adds support for double-sided (800K) drives, limited color monitor support, GEM-based formatters and copiers and compatiblity with Apple's Finder 5.3/System 3.2 operating system.

COMMODORE

Cadpak Mouse Support

Abacus (616/241-5510) enhanced its *Cadpak* software to use the new 1351 mouse for both the C64 and C128 computers. Among the unique features of *Cadpak* is the ability to produce true, scaled output on a wide range of dot matrix printers. All purchasers of *Cadpak* since February 1st of this year are entitled to a free upgrade to the mouse version. Abacus also increased its customer sup-



The ProWriter Jr. Plus offers enhanced speed and expanded memory.

Souped-Up ProWriter

C. ITOH Digital Products (800/423-0300) added more speed, memory and faster throughput to its popular ProWriter Jr. dot matrix printer. The enhanced printer is called the ProWriter Jr. Plus. Speed is increased by 33 percent to 160 cps in draft mode. In addition, throughput speed increased from 48 to 61 lines per minute (LPM) and the buffer memory been enlarged to 8K to handle multiple page documents. One button selection sets the printer for 30 cps in NLQ mode. ($369)

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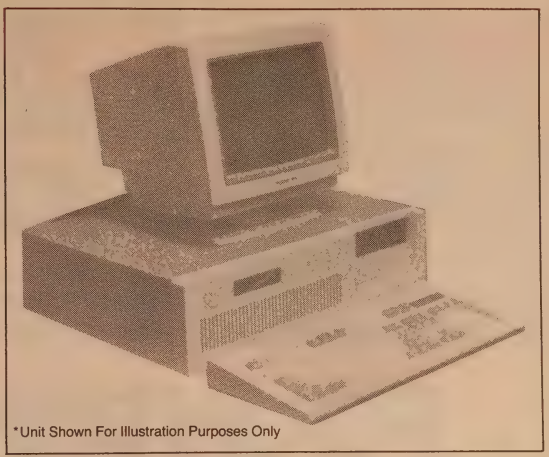

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IBM AND COMPATIBLES

Framework II Developer's Toolkit

Ashton-Tate (213/329-8000) is shipping its *Framework II Developer's Toolkit*, a collection of routines and programs designed to aid developers in writing faster and more efficient custom applications using *Framework II*'s FRED development language. $99.95 until May 30th, then $149.95.

Instinct For Windows

Cadlogic Systems Corp., (800/962-0660) has introduced *Instinct*, a technical drawing package that operates under MS *Windows*. There is online help from any location within the application. The program is WYSIWYG, has unlimited zooming steps, offers all of the basic graphic items, such as dot, line, arc, etc. It also includes variable line style and width, brush pattern, and color availability. You can create drawings as large (as many pages) as you wish. ($99.95)

Upgraded Timepiece

Communications Dynamics, Inc., (503/ 684-5151) is releasing the version 1.3 of *Timepiece*, a project management software package for the IBM PC family and compatibles. *Timepiece* is now upgraded to include a custom graphics interface which includes line styles, patterns and a color palette. In addition, *Timepiece* is now compatible with Xerox's *Ventura Publisher*. Upgrades are now available for current customers for $50.

GEM Graphics Applications Available For Personal System/2

Digital Research (408/649-3896) has made available the complete line of GEM presentation graphics applications for IBM's newest PC family of computers, the Personal System/2. *GEM Draw Plus*, *GEM Graph*, *GEM WordChart*, *GEM Presentation Team* (available this summer), *GEM Business Library*, *GEM Desktop*, and the *GEM Programmer's Toolkit* software, are offered on the 3-1/2-inch diskette media for the IBM Personal System/2 models 30, 50, 60, and 80. These applications have been thoroughly tested on the new IBM hardware as well as on the IBM PC, XT and AT.

Pro3D/PC

Enabling Technologies (312/427-0386) has introduced Pro3D/PC, a three-dimensional solid modeling program designed to run under the MS *Windows* operating environment. The program's algorithms generate high quality 3D solid models in full colors as fast as most wire-frame modeling programs. Two modeling tools, the Profiler and the Lathe, allow users to create complex objects or scenes with speed and precision. ($595)

New From Intersecting Concepts

Intersecting Concepts (805/373-3900) announced new versions of *Backup Master*, *Code Blue* and *Media Master* programs. *Backup Master 2.0* is an improved hard disk utility backup for PCs and compatibles. It now includes an easy menu driven install program, advanced error detection and correction capabilities, and an unequaled backup progress display. *Code Blue 2.0* is an easy to use software conversion program that instantly transforms a DEC Rainbow 100's MS-DOS operating system into IBM's PC DOS. ($99.95). *Media Master 4.1* now supports disk-to-disk transfers with over

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200 foreign disk formats on both 5 1/4- and 3.5-inch floppies and also runs on higher speed computers. ($39.95)

New Features For MagnaType

Magna Computer Systems (818/986-9233) has announced that *MagnaType*, the PC-based typesetting system, has been enhanced with new features. Now included with the package is a library of "style sheets" for various kinds of applications, including books, magazines, newsletters and business cards. By adding simple generic plain-English tags, text files can be quickly and automatically formatted to produce a finished document. The new features are part of a major new release of *MagnaType, Version 1.6*

Business Works PC

Manzanita Software Systems (916/ 781-3880) released a new business accounting system specifically for the IBM PC, XT, AT and compatibles. The first two modules of *Business Works PC*, the System Manager and General Ledger, are now available. The modules are the first in a complete line of MS-DOS accounting modules with the Accounts Payable scheduled for release in April. Useful features such as on-line HELP at almost every prompt guide the user through the program. Show windows list needed information such as account numbers, invoice numbers, and the creation of export files that are accessible by other programs like *Lotus 1-2-3, Multiplan, WordStar* and *WordPerfect. System Manager* is $95 and *General Ledger System* is $395.

New Microsoft Products

Microsoft Corp., (206/882-8080) has announced new systems software to compliment IBM's new hardware based on the 80286/386 processors.

MS OS/2, a multi-tasking operating system that provides PC developers and users with minicomputer type power with *Windows* presentation manager as the standard graphical interface. MS OS/2 will also run MS DOS applications.

Microsoft *LAN Manager* is a sophisticated new networking system that allows for true distributed software on PC systems and can also be linked to Microsoft's existing MS DOS and XENIX networks.

MS *OS/2 Software Development Kit* includes the MS OS/2 kernel, language compilers, specifications for Microsoft LAN Manager and presentation manager, and all other components required for software developers to being writing MS OS/2 applications.

MS DOS 3.3 offers better performance and utilization of hard disks, and improved support for foreign language versions. The new release of *Microsoft Windows, v2.0* has the same visual appearance as the new MS OS/2 Windows presentation manager. It has as much as fourfold improvements in graphic output over earlier versions of *MS Windows*. A number of keyboard and mouse operations have been streamlined.

Microsoft has announced new 3.5-inch diskettes and a version of the MS Mouse that provides hardware compatibility with the new IBM Personal Systems/2. Various Microsoft applications products will be enhanced over time to take advantage of the high resolution graphics on the new system.

Microsoft also announced the following delivery dates: April '87—applications on 3.5-inch diskettes to end users; August '87—MS *OS/2 Software Development Kit* to software developers; November '87—MS OS/2 *Windows* presentation manager and MS OS/2 *LAN Manager* to developers; December '87—MS OS/2 Kernel shipped to OEMs; First Quarter '88—anticipated shipment of MS OS/2 kernel to end users.

Paperback Software Introduces VP Graphics

Paperback Software (415/644-2116) has introduced *VP Graphics*, a drawing, charting and presentation program that is "object based." *VP-Graphics* can be used to enhance existing graphs from *VP Planner* and *Lotus 1-2-3* spreadsheets, and can import and create graphs from data located in external files. There are pull-down menus, automatic "snap" points, drawing and editing tools, several text features, and support for most of the popular printers on the market today. ($99.95)

New Version Of PAGEr

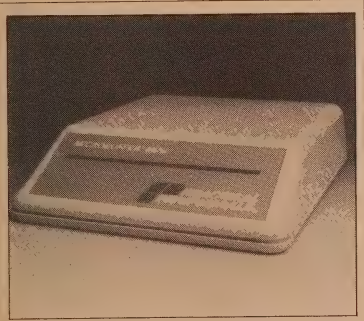
Plummer Research (415/324-8160) has announced *PAGEr 1.5*, a new version of its popular, low-cost desktop publishing package. Added is LaserJet support. The program uses dot matrix printers and requires only 256K of RAM, Even though features such as rubber-band lines and boxes are provided, the program does not require a graphics card. There are newly added setable tabs, a new "static" menu as an alternative to pop-up, and several user convenience items. For dot matrix printer users, *PAGEr 1.5* offers double-high, double-wide characters, suitable for headlines or viewgraphs. ($49.95)

Realworld's Online Upgrade

Realworld Corp., (603/798-5700) has released an online upgrade path from its entry-level package, *4-In-1 Basic Accounting*, to the latest version of its *Accounting Series*. Users can upgrade their data files simply by following an automated online procedure. The company is also preparing to ship a payroll interface package.

Snow Report Writer

Snow Software Corp., (813/784-8899) just released the new *Snow Report Writer*, which can read virtually any file format and has been dubbed the report writer for all software. The *Snow Report Writer* can be used standalone or with data files from popular databases, word processing or business applications programs. The user selects all the data needed to create custom reports, mailing lists, labels, letters, business graphics, to print on custom forms and to do quick or complex queries. ($695)



The Microbuffer/Mini 512 printer buffer offers expanded memory and enhanced interface options.

Compact Printer Buffers

Practical Peripherals (818/991-8200) has introduced three new models of its Microbuffer/Mini series of standalone compact printer buffers that feature both expanded memory and additional computer interfaces. The new models, designated the Microbuffer/Mini 512, come with a choice of either parallel to parallel, serial to parallel, or parallel to serial interfaces, and are available with up to 512 K of buffer memory.

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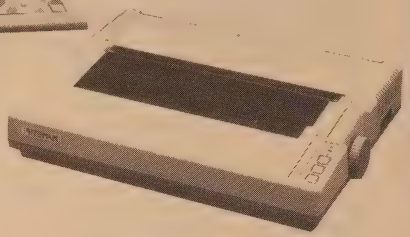

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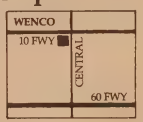

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TurboView

Sublogic Corp. (800/637-4983) released *TurboView*, an *AutoCAD* third party software package which takes a drawing generated by *AutoCAD* and converts it to a high speed assembly language format. It also allows you to view and animate the object in both orthographic and true perspective modes. *TurboView* allows you to view your drawings an average of 40 times faster than *AutoCAD* without the math coprocessor, and an average of 7.5 times faster than *AutoCAD* with the math coprocessor. ($495)

SCriptwriter

The University of Southern California (213/743-5501) has entered the PC software marketplace with the release of *SCript Writer*, a system that permits an author to create educational software. The system was developed at USC with the assistance of IBM. *SCript Writer* contains all of the capabilities normally found in slide presentation systems and in graphic editors. All of the action is described using the programming language called IQ. There is support for animation and sound. ($40)

MACINTOSH

LP Text

London Pride Inc., (203/866-4806) introduced release 2.1 of *LP Text*, special effects software for the Mac. Included in the new release is kerning and halftone screen control. A basic entry screen allows access to PostScript programs, and text can be set around the circumference of any diameter circle with absolute control of letter spacing. A variety of other special effects are also available. ($99)

Target Releases

Target Software, Inc., (1-800 MAC LITE, in FL 305/252-0892) offers a new version of those 3M Post-It Notes for the Mac—*Memorandum*. Users attach electronic "sticky notes" to files and documents, using this desk accessory. The notes can be made to pop up on screen when needed, and can be attached to cells in a spreadsheet, fields of a database or a portion of text in a word processing document. "Note Files" can be shared within a network, "Time Notes" can be attached for a specific time of day and it will pop up on screen. Whole documents can have "Window Notes" attached; "Scratch Notes" are not attached to anything, but can store information that one accesses frequently. Compatible with Mac 512K, Mac Plus, Mac SE and Mac II, priced at $99.95.

Target also released *The Merriam Webster Thesaurus for Microsoft Word 3.0*. Target is so confident that this will be well received that it's offering a money back guarantee. Used with *Microsoft Word 3.0* it contains 45,000 whole root words and produces up to 1.4 million combinations of synonyms. All 45,000 root words include complete definitions. A feature called "Virtual Cross Referencing" permits the user to continuously cross reference from one synonym to another. Available for $59.95.

New Version Of Ragtime Page Processing

Orange Micro (714/779-2772) announced at the Seybold Conference on Desktop Publishing, Version 1.1 of *Ragtime Page Processing*. *Ragtime* combines advanced page layout capabilities with the most commonly required software for business, including word processing, spreadsheet, and graphics management. The new additions to *Ragtime V. 1.1* will offer automatic page layout,

LET'S FACE IT. PC-SIG AUTHORS ARE HEADS ABOVE THE REST.

CHRIS McVICAR
IMAGEPRINT

Christopher O. McVicar is a very busy author. He formed his business, Image Computers Systems, in 1978 in both The United States and in England. He still had time to get his degree in Political Science from the University of Connecticut and a Masters degree in Computer Science from Rensselear Polytechnic Institute in 1983. In 1985 he brought to our library IMAGEPRINT (Disk #517) and we are glad he did.

IMAGEPRINT provides exceptional print quality from ordinary dot matrix printers that are IBM Graphics Printer, Proprinter or Epson compatible. IMAGEPRINT characters can be bold, italic, half high, double width, compressed, ten or twelve cpi, proportional, underlined, superscripted and subscripted. Written in C and assembler this program has built-in formatting commands that allow micro-justification of text, automatic header and footer generation and many more useful and important applications for printers.

ALAN FARMER
WILLY THE WORM

Alan Farmer is an author to keep your eye on. As a physics major at the College of William and Mary in Virginia he spent what little free time he had developing programs. Much of his best efforts in programs running from arcade games to mathematical diversions to telecommunications wound up in the public domain.

In the PC-SIG library he is known for Willy the Worm (disk #445). An arcade game similar to Donkey Kong or Lode Runner, but unique in that included is a screen editor to make your own game screens. In the future he is promising the sequel Willy the Worm II...a larger, more challenging and more colorful game than its predecessor. We hope you can take the excitement.

LEN SHEPARD
MONOPOLY PC PCPM

In 1979 Len Shepard authored MONOPOLY PC (disk #475) while running a construction business and using another program he developed PCPM (disk #423). For Monopoly buffs this package is a must. By putting the player in a head-to-head situation with the computer. Matching wits against computer logic in deciding when and when not to buy, mortgage and build. Park Place, look out.

PCPM was developed and still used for consulting and programming construction projects. Its features include: automatic updating of projects actual report finish dates, producing reports by subcontractors, scalable Gantt charts and cash flow analysis by early and late projections. If both programs were used in tandem, a person is likely to be unbeatable in Monopoly.

MARILYN PRICE
CHECKBOOK MANAGEMENT

Anyone who has ever had to face the trauma of balancing their checkbook will applaud author Marilyn Price's Checkbook Management Program (disk #393). Presently a computer consultant, Ms. Price, took her B.S. in Math from the University of New Mexico and a B.S. in Computer Science from East Tennessee State University.

The program was originally written for personal use and includes features that are universally familiar. She still uses her program everyday and who wouldn't with features like: entry, deletion and/or correction of all forms of checking account transactions; bank statement reconciliations, automatic check numbering and date entry and customization features. Now if we can just find where we put our checkbook.

TOM SIMONDI
TUTOR. COM

After a career in the Air Force, author Tom Simondi, became a microcomputer systems analyst for a major aerospace firm. Seeing that the job would only fill his daytime hours, he took a position instructing computer students at night. His addition to our library TUTOR.COM (disk #403) was written as an adjunct to a college class he taught in microcomputing.

TUTOR.COM is a condensed course in microcomputing. It holds a wealth of information about computers and specific data on the IBM-PC disk operating system. Users can obtain a general understanding by skimming and in-depth information with careful study. Registered users may obtain aids for authoring their own tutorials. Whether or not you are a student in one of his night classes, if you are interested in computers this is a disk for you.

DAVID ALEXANDER
MR. BILL, CK

David Alexander graduated from Stanford in 1967. He took his law degree from Boalt Hall at the University of California and was admitted to practice in 1971. Apart from being the author of disks #462, 463, 469 and 470, he is the author of two books 'The Chocolate Spy' and 'Fane'.

Software users know him for Mr. Bill. A valuable program that lets you pick the items you want to charge for, enter them in random order and prepare itemized invoices in date order with automatic balance forwarding...to mention just a few of the features of this professional time and billing program. Also, CK, which accepts your income and expenses on up to 9 different accounts and generates reports sorted by income and expense category. Further, a "wild card" sorts by date, name, entry number and amount. A necessary small business manager.

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Alan Farmer
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- ☐ **#462, #463 CK-System** **$12**

New Additions
- ☐ #635, #636 Muses – organize circulation of manuscripts $12
- ☐ #642 Menu-Master – General purpose menu utility $6
- ☐ #643 TASM – IBM compatible assembler for 8048, 8051, and 6502 processors $6
- ☐ #656 Real Estate Systems – Keep and search for pending/closed sales $6
- ☐ #662, #663 DATABOSS – Data base with report generator $12
- ☐ #666 S.P.L. – Hybrid mix of structured BASIC with Pascal $6
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- ☐ #78, #627 PC-Write – our most popular and very powerful $12
- ☐ #528 New York Word – split screen, mail merge, test buffering $6
- ☐ #455, #681, #682 PC-TYPE – word processor from Jim Button's $18
- ☐ #379 Wordstar Aids – useful utilities for color, ASCII conversion and more $6
- ☐ #480 PC-Outline – comparable to thinktank $6

Spreadsheets
- ☐ #199 PC-CALC – easier than Lotus but very effective $6
- ☐ #524, #535 ExpressCalc – Well liked spreadsheet $12

Memory Resident Programs
- ☐ #405 Deskteam – a phone dialer, notepad, calendar and calculator. $6
- ☐ #558 PC-Prompt – memory-resident "Help" commands in an online mode ... $6

Database Management
- ☐ #5 PC-File 1.11 – great for creating labels, forms and letters $6
- ☐ #522 Instant Recall – memory-resident program that stores and retrieves a wealth of information $6
- ☐ #521 Free File – an easy to use and learn relational DBMS $6

Communication
- ☐ #310 Qmodem – fast, easy, with windowing feature $6
- ☐ #499 Procomm – a professional communications program $6

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- ☐ #344, #345 PC Key Draw – sketch on your screen (color graphics card required) $12

Utilities
- ☐ #133 Ultra Utilities – recover lost files accidentally erased, modify and look into files on a disk $6
- ☐ #478 Hard Disk Utilities – The best from over 25 disks in the library. $6
- ☐ #523 Sidewriter – Prints text files sideways $6
- ☐ #517 Imageprint – produce letter-quality output on a dot-matrix printer $6

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- ☐ #105 PC Professor – easy way to learn BASIC $6
- ☐ #510 Visible Pascal – allows you to see your program in operation $6
- ☐ #424 Pascal Compiler – compiler written in Turbo Pascal. $6

Entertainment
- ☐ #293 Arcade Games – The best of. (color graphics card req) $6
- ☐ #477 Wordgames – stimulates the ...

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HARDWARE/ ACCESSORIES/ PERIPHERALS

Signalman Lightning 2400 Baud Modem

Anchor Automation introduced its Signalman Lightning 24 MNP, an intelligent 2400 baud modem with built-in Microcom Networking Protocol (MNP). This unit insures error-free transmissions by retransmitting lost or incorrectly received data and incorporates level 4 technology for such communications. The unit uses all CMOS technology and generates less heat than any other 2400 baud modem.

VIVA Palette

QDP Computer Systems (216/464-6600) announced a new graphics board upgrade, the VIVA Palette, which allows 256 colors to be displayed simultaneously from a palette of over 16 million. The combined use of VIVA high resolution graphics boards and the VIVA Palette board offer the lowest cost alternative for 3D solid modeling on a wide array of monitors, including NEC Multisync, Sony Multiscan, Taxan Supervsion and other variable scan monitors and most 19-inch analog monitors. The board will sell for under $1,000.

Mini-Microspooler

Consolink Corp., (1-800/525-6705) has announced the Mini-Microspooler for low-end spooler/buffering needs. This peripheral can hold about 20 pages of text and make multiple copies; it can be reset at the touch of a single button. Four modes are available: parallel to parallel, parallel to serial, serial to parallel, and serial to serial. ($199)

Galaxy II Tape Backup System

Genoa Systems Corp., (408/432-9090) announced the Galaxy II tape backup system with 120 MB capacity which features support for network connectivity. The Galaxy II can also support standalone, single user systems. The company also offers 20-, 50/60- and 60 MB cartridge systems.

Key Tronics Keyboard

Key Tronic Corp. (509/928-8000) has introduced an end-user version of its very successful 101 key keyboard, the KB101. The 101 keyboard operates with all IBM micros and compatibles and features 101-standard keys, including separate cursor and numeric keypads, 12 function keys and LED indicators for the number lock, caps lock, and scroll lock keys. Reliability of the KB101 keyboard has been established by the company at 100 million cycles. ($159)

Manzana 1.44 MB 3.5-Inch Floppy Disk Drive System

Manzana Microsystems, Inc. (805/968-1387) introduced the industry's first high capacity 1.44 MB 3.5-inch floppy disk drive system. It has been designed to allow 80286 and 80386-based MS-DOS computers to maintain disk compatibility not only with existing the 3.5-inch, 720K format, but also with IBM's expected new line of micros. There will be three models: an internal drive, a host-powered external drive, and a self-powered external drive. All three come with the company's *3FIVE* software that allows the drives to access the higher capacity 3.5-inch formats using any version of MS-DOS 2.0 or higher. Pricing is $325, $475 and $595, respectively.

Enhanced Modem From Racal-Vadic

Racal-Vadic (408/946-2227) enhanced its full featured 2400 bps modem line with the introduction of the 2400PA Model 2. Enhancements include front-panel control, an eight-character LCD, a built-in speaker, multi-protocol auto-dialer and ATPlus compatibility. ($795)

Captain 286 Board

Tecmar, Inc., (216/349-0600) expanded its line of multifunction boards with the introduction of the Captain 286 board that combines multifunction features with extended memory support and expanded memory under the LIM EMS standard. The Captain 286 is a low-profile design that allows it to be used in the new IBM XT 286 as well as the IBM AT and compatibles. The board handles memory expansion up to 4 MB on a single-level board using custom-designed 256K SIMM. Prices start at $845 for the 512 K version.

PUBLICATIONS

Programming The Intel 80386

Scott, Foresman and Company (312/729-3000) has just published the first guide to Intel's new 80386 microprocessor. Titled *Programming The Intel 80386*, and written by Bud E. Smith and Mark T. Johnson, this is a complete reference work that any programmer will find valuable. ($22.95)

Inside Macintosh Volume V

Addison-Wesley Publishing Company (617/944-3700) announced *Inside Macintosh Volume V* and the creation of the *Inside Macintosh Library*. The former contains technical information pertaining to the Mac II and Mac SE computers. It supplements the existing *Inside Macintosh Volumes I-IV*. The *Inside Macintosh Library* is comprised of several volumes of technical information about the entire Macintosh family of computers.

NETWORKING AND COMMUNICATIONS

dCom→Link

Fastcomm Systems Inc., (213/306-8592) has debuted a communications program that links data from remote devices and services with leading PC database management packages. Called *dCOM→LINK*, the program enhances *dBASE III Plus, Quicksilver, Foxbase Plus* and *Clipper*. Data from any device that uses a standard RS232C serial port can be captured and disseminated to multiple external ports. ($295)

Archive-Link

General Information Services (215/557-1950) has released *Archive-Link*. This is software that permits disk-to-disk document conversion between an IBM or PC clone and Wang OIS or VS 5-1/4 inch Archive Disk format. Archive-Link supports *MultiMate, IBM DisplayWrite* (I, II, III and IV), *WordPerfect, WordStar, OfficeWriter* and *Microsoft Word*. ASCII and IBM's DCA are also supported. ($375)

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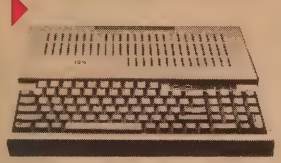

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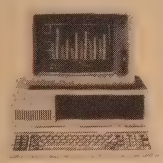

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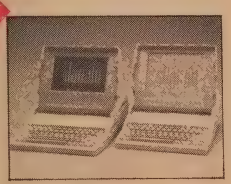

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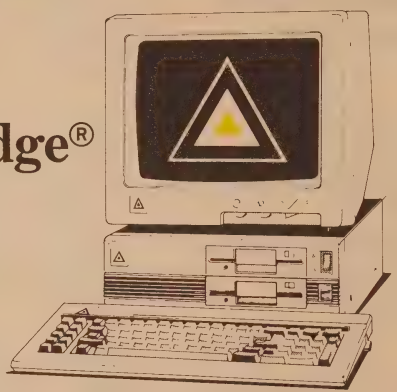

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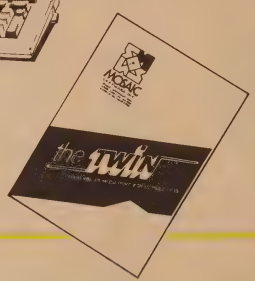

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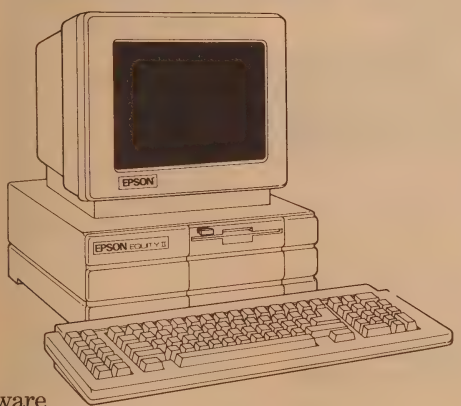

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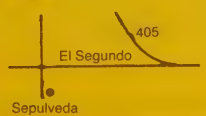

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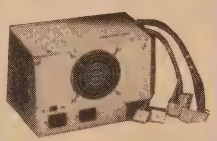

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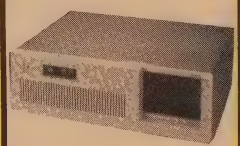

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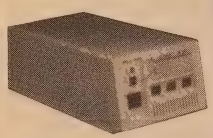

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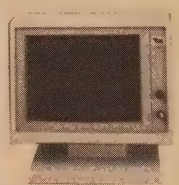

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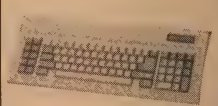

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FREELANCE PLUS

Converting Your Data To Effective Graphics

By Woody Liswood

Lotus' *Freelance Plus* is one of the easiest to use, most sophisticated and most complete display graphics—by which I include the type of graphics normally found in a business environment—programs available for microcomputers. *Freelance Plus* works with a variety of dot matrix printers and digital plotters. It comes with an extensive library of graphic images to help increase visual impact and interest.

Aside from the tremendous power of *Freelance Plus* in creating graphics, it also offers two major benefits when using files created by other programs. *Freelance Plus* directly imports *Lotus*.PIC files, *Graphwriter* picture files, and any ASCII file. It moves, deletes or changes any element on the screen. It also adds additional text or library images to help make the graphic more visually interesting.

In addition to entering text, you can choose from lines, arrows, rectangles, circles, slices, arcs, markers and polygons. You can enter a variety of bar, line and pie charts from filling in forms in a special chart menu. The graphic elements you create can be constructed from a variety of colors, line widths, and fill patterns. There are multitudes of text fonts.

Each of these elements can be sized individually or as a whole. Any element can be moved to any part of the screen. Graphic elements can be identified individually, or created and merged into stand-alone graphics which *Freelance Plus* identifies as symbols. These symbols can then be placed into your own individual libraries to be used over and over again as necessary. You can also do freehand graphics if you have a mouse.

CHARTS

Creating charts is one of the most common problems for businesses. *Freelance Plus* has text, pie, bar, line and scatter charts built into the system.

One of the problems I had with *Freelance Plus* is that it lacks the ability to fit a line through the scatter charts. Of course, if you need to enter in that calculated line, you can create the chart in *Graphwriter*, also from *Lotus*, and then import the chart into *Freelance Plus*.

There is a limit to the number of data points which can be entered into the chart section of *Freelance Plus*. Moving to *Graphwriter* gives you the calculated line as well as up to 100 points per line. If you have more than that, you must use *Lotus*, create your graphic, program your line fit, create your graphic, then move it into *Freelance Plus*. *Chart Master*, for example, allows more than 100 points on a line, but you cannot move that chart into *Freelance Plus* for additional manipulation.

You can enter data into these predefined chart formats through the keyboard or by importing *Lotus* Worksheet or *dBASE* files. I have used the *Lotus* interface and there were no problems.

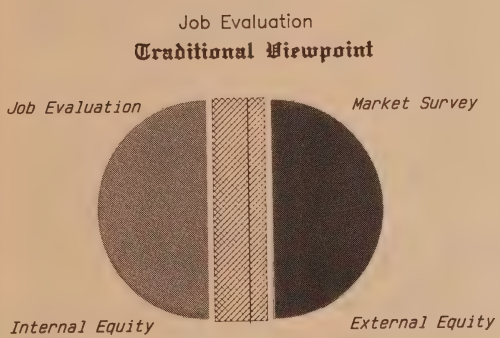
There is a variety of information which you enter into the form displayed on the screen.

First, identify the type of chart. Next, enter up to two lines of headings. If you are creating a bar chart, you must tell how many bars per cluster you need—you are allowed up to eight. Then tell how many bars, or clusters of bars, are to be used. *Freelance Plus* allows up to 36 clusters. Each bar can have a legend. You can have separate colors and/or bar fills. Each bar cluster can also have a separate label. You can then identify a label for each axis. Each axis can be scaled separately; also specified is a minimum and maximum value for each axis, as well as the label interval and tic mark interval for each axis. If needed, a separate type face is available for each element.

The completed form is created as a separate symbol on the graphic screen. Once created, it can be moved and sized as desired. Charts may also be saved and retrieved.

If you import data from a *Lotus 1-2-3* or *Symphony* file, you fill in a specific input form. You identify the chart type, and then give the named ranges from the worksheet which contain the data for the chart format. When I went to import my first *Lotus* Worksheet, I had to exit *Freelance*, boot *1-2-3*, identify the named ranges, then return to *Freelance Plus* to import the file.

The *Chart* menu also allows you to create text charts. You must identify each block of text and all of the



The same data, with graphs generated by 1-2-3 (left) and Freelance Plus.

Freelance Plus directly imports Lotus.PIC files, GraphWriter picture files, and any ASCII file. It moves, deletes or changes any element on the screen. It also adds additional text or library images to help make the graphic more visually interesting.

information which goes with it. It is similar in nature to the text chart area of *GraphWriter*. I felt that I would rather use the main graphics screen of *Freelance Plus* with its infinite flexibility than work under the constraints of the predetermined text charts.

MAIN SCREEN

The main screen of *Freelance Plus* is bounded by a view area. This view area shows the edges for the size of paper you identify for output. At the top of the view area is a *Lotus* style menu. As you move your bar cursor from menu item to menu item, a descriptive line appears showing the commands available as a subset of the top item.

On the right of the screen is an information panel which gives information about the currently selected item and cursor position. It always shows the position of the cursor on the screen in terms of X-Y coordinates. It tells the name of the current file as well as the selected input device.

Since there are two separate graphic work areas in *Freelance Plus*, the active work area is identified. The amount of available graphic memory is shown as well. Additionally as the cursor selects an element on the screen, the information box shows the type of item selected, its color, line style, line width, fill pattern, and edge color.

Freelance Plus works with EGA, CGA and Hercules Graphic adapters. With an EGA card *Freelance Plus* displays graphics in the chosen color.

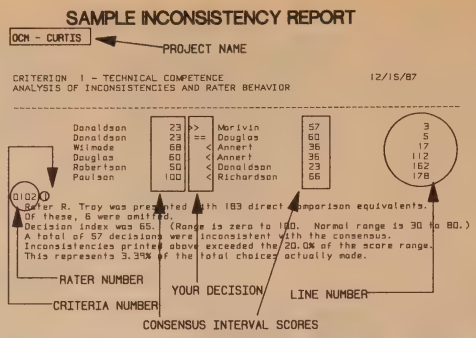
TEXT

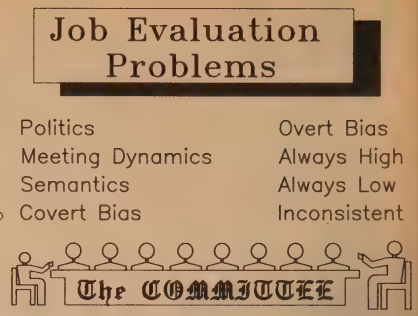
One of the most important features of *Freelance Plus* is the ability to import pure ASCII files directly as graphics. This means you can create charts with your word processor, read them directly into *Freelance Plus* and then turn them into overhead slides.

A few months ago I did a speech entitled "Productivity Software—Life Beyond *Lotus*" in which I talked about 30 or so software packages which I felt were important to own and use in business. *Freelance Plus* and *Sidekick* received premier attention.

To illustrate the speech, I had created over 200 overhead slides which were screen images from the various software packages. To make the slides I booted the package and called up or created the screen that I wanted to have as an illustration. Next I invoked *Sidekick* and entered the notepad. Then I imported the screen image into the notepad and saved it. I then booted *Freelance Plus*, imported the *Sidekick* file, sized it to fit the overhead projector transparency and plotted the graphic using a Zeta Sprint plotter in HPGL mode on overhead transparency material. I had told *Freelance Plus* that I had an HP 7475 plotter connected.

Without *Freelance Plus*, that speech would have been almost impossible to illustrate. Thank you *Sidekick* and *Freelance*!


SAMPLE INCONSISTENCY REPORT
OCM - CURTIS
PROJECT NAME
CRITERION 1 - TECHNICAL COMPETENCE
ANALYSIS OF INCONSISTENCIES AND RATER BEHAVIOR
12/15/87
Donaldson 23 >> Marvin 57 3
Donaldson 23 == Douglas 60 5
Wilmade 68 < Annert 36 17
Douglas 60 < Annert 36 112
Robertson 50 < Donaldson 23 162
Paulson 100 < Richardson 66 178
0102
Rater R. Troy was presented with 183 direct comporison equivalents.
Of these, 6 were omitted.
Decision index was 65. (Range is zero to 100. Normal range is 30 to 80.)
A total of 57 decisions were inconsistent with the consensus.
Inconsistencies printed above exceeded the 20.0% of the score range.
This represents 3.39% of the total choices actually made.
RATER NUMBER
CRITERIA NUMBER
YOUR DECISION
LINE NUMBER
CONSENSUS INTERVAL SCORES



Typical graphics generated for a variety of purposes by Freelance Plus.

ADD

When you wish to add anything on the screen, it is done through the ADD menu. Select from TEXT, LINES, ARROWS, RECTANGLES, POLYGONS, CIRCLES, SLICES, ARCS, MARKERS or FREEHAND lines. To select one of these elements, you position the cursor to the point on the screen where you wish the graphic to begin and then press the space bar. As the cursor moves, the graphic remains anchored to the point where the cursor was located when you first pressed the space bar. It then stretches or creates in the direction you are moving the cursor. For elements with more than one point, you continue to press the space bar to provide an anchor and move on. When done, you press return.

SELECT

If there is more than a single element on the screen, you must tell *Freelance Plus* which element you wish to edit. You do this through the SELECT menu. You can select ONE element, SEVERAL elements, all of the elements inside a DEFINED AREA, elements which are TOUCHING, MORE or LESS than are currently selected, ALL elements on the screen, NO elements on the screen, elements which are LIKE the element which you have currently selected or CYCLE through previously selected elements to determine which one you wish to work with.

For example, you may have created a form with many lines and text elements. You decide that you wish to change all of the lines on the form to a bolder width and a different color. You first use select ONE and select any of the lines. Then you use select LIKE to select all lines. Now you can edit all of the lines as a single element to make those changes globally.

You can do the same thing for text elements. Let's say you want to leave all of the graphic elements in an illustration alone, but desire to change all of the text elements to the same type face. You would first select a single text element. Then select like text elements. Then you make a single editing change for those text elements to a single text face. *Freelance Plus* identifies each selected element by putting a small box on the screen at the elements attach point.

EDIT

The EDIT menu gives you complete control over all the elements on the screen. You can SIZE any or all objects uniformly or stretch them in any single direction. You can change the COLOR, STYLE, FILL, and WIDTH of any line elements.

You can also change text FACES, SIZES, ANGLES, or ANCHOR POINTS. With lines you can move either end or any point in the line to any other place. You can connect lines, and polygons. You can also change the EDGE color of elements to one color and have the inside fill as a different color.

MOVE/REARRANGE

Within the MOVE and REARRANGE menu you can COPY, REPLICATE, DELETE, UNDELETE, and FLIP (HORIZONTALLY or VERTICALLY). You can also change the PRIORITY of any item or selected item. This priority is important with dot-type output devices.

As you create items, the last item created is the last item which is printed on the output device. With a Digital Plotter, this means the last line placed on the screen is the last line which is drawn on the plotter. If this line is over another graphic element it will be plotted over the element. With different pen colors for each element, this can create interesting visual displays. However, with black and white dot devices, elements which overlay other elements may be visually confusing.

With the dot devices, the lower priority items are not printed on the device. Only the highest priority or the graphic on top is printed. This is similar to a hidden line routine in CAD programs. By changing the priority of the item you can hide or bring it to the forefront.

This menu also lets you JOIN or SPLIT apart library images or single graphic elements so that you can work on a single element. You can also LOCK or UNLOCK elements so that they can be edited.

Freelance Plus has the ability to import pure ASCII files directly as graphics. You can create charts with your word processor, read them directly into Freelance Plus, and turn them into overhead slides.

VIEW

The view menu lets you zoom IN on a section of the screen or moves the view around on screens which extend larger than the display area. By moving in on an element you are able to see finer and finer detail.

This section contains one of two "bugs" I found in the program. At least I think it's a bug—the documentation, however, calls it a feature. You decide.

When zooming in on a section of the screen, you will normally be working on graphic elements which extend beyond the new screen boundaries. If you are editing and changing these elements, you may find when you return to your normal view that the change you thought had made in the close-up view has not been made on the full graphic. There may have even been major position changes made that you did not want.

This is especially true if you attempt to move a line which is shown on the detail screen and which extends beyond the screen. You may move a point on the line which is visible on the screen, but you cannot move the entire line without complete disaster.

In some cases, when you attempt to move the line it will even disappear from the screen and will be completely out of place in the full view screen. The documentation slides over this by saying there may be problems if you attempt to do this type of edit. However, if you are using *Freelance Plus* to create forms which extend across an entire page, you will have problems in editing after using the VIEW command.

FILE

The file section allows you to retrieve and save files. It also allows you to import .PIC, ASCII, and METAFILES. The metafile is in a format which is based on "the currently proposed ANSI Computer Graphics Metafile (CGM)." Since I had no other programs which created or used these metafiles, I did not test this feature.

SETUP

When you first boot *Freelance Plus*, you can select and configure your output devices as well as identify your pen colors and sizes and the fonts you want to have available.

When you are in the OPTIONS portion of the PLOT menu, you can change the font selection to any font which was selected in SETUP. You can have up to three selected output devices active at a single time. I normally use a HP7475 for my digital plotter, an Epson MX80 for the dot matrix device, and an EGA screen. This way I can print a graphic to the screen to see if it will look like before it goes to the printer or the plotter.

The FONT section contains another "bug" in the program. There are occasionally problems when you mix text and graphics. The screen may not show exactly what will appear on the paper. This is because the text elements, as shown on the creation screen, may be slightly different from the text fonts which the output device produces.

This is especially true in creating multi-line forms using a non-proportional type face. In the older version of *Freelance*, you could change the screen type face to emulate the plotter type face so that this problem would not exist. In *Freelance Plus*, you can't.

In my opinion, *Lotus* has introduced a bug which did not exist in the earlier version. The documentation suggests that you PRINT the graphic to the screen before you plot in on the plotter so that you can see if there are going to be any problems. Then, to fix the problems, you edit the graphic so that the final output is correct even if the on-screen display is now incorrect. This, however, is a pain.

You can select the type of paper or transparency material you are using, and *Freelance Plus* will adjust the speed of the pen to give best results for the combination. You can also set the size of paper which you are using, as well as the orientation for the plot. As you do so, the graphic outline on the working screen will change to the size and proportions of the paper you have chosen.

You are allowed to have eight active text fonts. Depending on the output device, you can choose from a variety of hardware and software fonts.

SYMBOL LIBRARIES

One criticism of the earlier version of *Freelance* was that it did not contain many pre-drawn graphic elements. *Freelance Plus* comes with a few hundred elements, which may help to satisfy that criticism. There are library elements for arrows, borders, charts, chart aids, common objects, computer equipment, photography equipment, various boxes, and diagrams, flow charts, geometrics, markers, banners, boxes, titles currency, Greek alphabets, currency, flags, statehouses, human forms, international pictograms, map legends, mathematics symbols, music and card symbols, seasonal symbols, recreational symbols, signs, space planning for both 1/4" and 1/8" planning, clouds, and a map of the states.

Each library template can hold up to 20 separate symbols. There is also a library template for you to use in creating your own libraries.

The libraries are easy to use. You retrieve the library you wish onto the *Freelance Plus* screen you are not using. Then you select a symbol. Next you copy the symbol, return to the first screen, move the cursor to where you wish the symbol to be and press return. You can then move, size, and edit the symbol as necessary.

PROBLEMS

The two bugs mentioned above are a nuisance, but once you understand them you can easily work around them. The only other negative is limited graphic work area. *Freelance Plus* allows about 40K or so of work area. If you are using large size paper and creating complicated graphics you may find that there is just not enough space. I have run out of space on a number of occasions. It would seem to me that the graphic work space should expand to contain the total number of elements necessary and not be limited to such a small area.

CONCLUSIONS

Over the past two years I have probably created over 500 slides using *Freelance* and *Freelance Plus*. Although it seems complicated, I have never had to use the help screen or refer to the documentation to do what I wished (other than the original setup of the printers and plotters). If I had to have only one program for graphic output, *Freelance Plus* would be my choice. I feel than any person who must produce display graphics should own and use *Freelance Plus*. I could not give it any stronger recommendation. □

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Spreadsheet Pitfalls— And How To Avoid Them

By Robert Moskowitz

Even Lotus Development recently admitted that 30% of all worksheets are tainted with unsuspected flaws, and that, since corporations generally combine several worksheets to pass data to the next higher level, the probability of human errors in the worksheets delivered to the corporate leadership is a near-certainty.

Although corporate financial managers and multi-national division presidents often seem more highly trained and capable than the average working person, countless books and motivational specialists remind us that they are fallible mortals, just like the rest of us. One important new way we are reminded of their fallibility is by the type and frequency of errors these business leaders inadvertently build into their electronic spreadsheets—just like the rest of us.

By some estimates, human errors can be found in up to 70% of all electronic worksheets. This may be overstated, but even Lotus Development, in its *Lotus* magazine, recently admitted that 30% of all worksheets are tainted with unsuspected flaws, and that, since corporations generally combine several worksheets to pass data to the next higher level, the probability of human errors in the worksheets delivered to the corporate leadership is a near-certainty.

Most organizations prefer not to admit any problems with human errors in their worksheets, but word is beginning to circulate anyway. One shipping company, for example, grossly overstated its earnings in a recent quarter because of a simple error in a spreadsheet. A manufacturer's worksheet miscalculated raises intended for every employee in a department, while a retailing firm relied for its budget plans on a worksheet total that did not include some important line items. Recently a well-publicized lawsuit involved a construction company which won a contract on an extremely low bid. Imagine someone's embarrassment when they discovered the worksheet used to calculate the winning bid was badly constructed and had yielded a figure $250,000 too low! As you might imagine, the courts decided that the spreadsheet software is not to blame for the errors—the people using it create the problems and cause the damage.

Fortunately, these human errors in electronic worksheets don't have to remain undetected for very long. If spreadsheet users—and in corporations, the people responsible for supporting them—will only take normal precautions, the errors will dry up fast. For users, this entails routine error checks, and sometimes constructing error-check formulas in worksheets to validate their accuracy. For management, this entails alerting users to the dangers of uncaught errors and teaching them how to prevent the problem.

REASONABILITY CHECKS

The simplest method for catching human errors in worksheets is a "reasonability" check. The idea is to see very quickly whether or not the worksheet produces reasonable answers to typical inquiries. A "reasonability" check begins by entering fairly small, regular numbers like 1, 10, or 100. Then, with an eye on the critical answers the worksheet generates, users will double, triple, halve the numbers, and vary them in other simple, predictable ways. If the answers change in reasonable ways, the worksheet passes this test.

A "reasonability" test will catch many errors like a formula referencing (or taking values from) the wrong cell or written incorrectly, or a value with a misplaced decimal point. These and other errors are difficult to catch by looking at worksheet details alone.

One of the best methods of error checking an electronic worksheet is to use it to calculate known data. For example, a mortgage repayment worksheet can be compared against mortgage repayment tables or several known mortgage contracts. If the worksheet gives the answer we know to be correct, it is probably valid. If it offers different results, the worksheet warrants further inspection.

CROSS FOOTING

A more formal error checking method is called "cross footing." Primarily meant to validate accounting- or budget-oriented worksheets that display related sets of numbers in columns and rows, "cross footing" is the technique of comparing column totals with row totals to make sure they agree. The simplest method is to create a "sum" of the column totals and "sums" across corresponding rows, and to compare.

In a simple monthly budget, for example, the total spent across the rows for postage, for paper, and for pencils should agree with the column total on office supplies. In more complex worksheets doing inventory control, accounting, and other applications, the comparisons must be more selective, and there must be more of them. But the technique still provides an important way to flag mathematical and data entry errors. One way to simplify checking many "cross footing" comparisons is to reserve a section of the worksheet for subtracting the corresponding totals. When all the numbers are correct, the reserved section consists entirely of zeros. Any other digit stands out like a sore thumb and is a clear sign of an error.

SPREADSHEET AUDITING SOFTWARE

More detailed checks for errors are best accomplished with the help of "spreadsheet auditing" software. There are many of these programs commercially available, and some electronic spreadsheets — such as Microsoft's *Multiplan*—are now delivered with auditing features built in.

The auditing software quickly performs as many as fifty different checks on a worksheet and can display or print the results. For example, spreadsheet auditing software can pinpoint one of the most common errors in a worksheet: a formula referencing just part of a complete range (or group) of cells.

Partial range references often develop as users build worksheets through trial and error. They define a range of, say, half a dozen rows containing information such as sales costs, and then refer to that range in a formula calculating something such as profitability. Later, they will add new rows of additional sales costs. But unless they are careful, those new rows are not automatically included in the formula reference, and the profitability figure does not take them into account.

You don't need spreadsheet auditing software to avoid this, incidentally. One technique is to include the title of a range in the formula reference. The title words don't interfere with worksheet calculations, but they leave room for adding new rows within the pre-defined range where they are automatically added to any references.

Spreadsheet auditing software is built to check all formulas and their references, and to note where a reference does not include all the cells of a contiguous group. This is not always an error, of course, but the auditing

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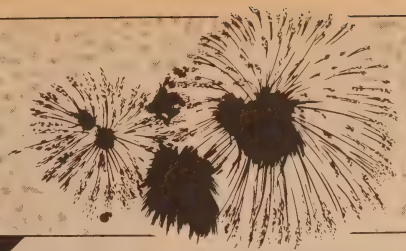

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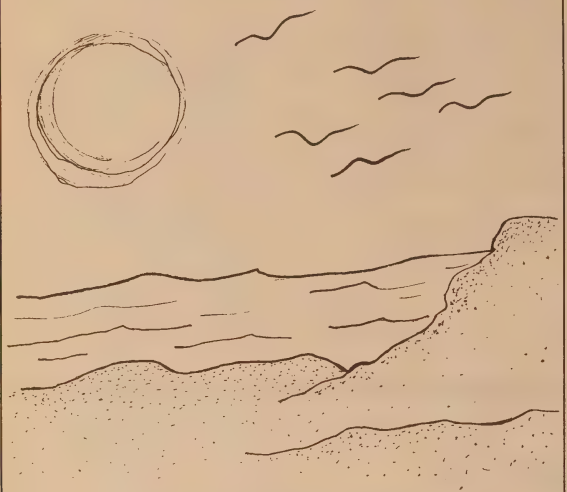

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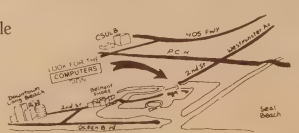

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No auditing software can identify the most insidious human errors that creep into electronic worksheets: misplaced decimal points, poorly conceived formulas, inaccurate data, and erroneous assumptions.

software brings all such cases the user's attention and lets him or her decide if every reference is correct.

Another very common worksheet error is to copy a formula along a row or column, but mistakenly replace the formula in one of those cells with a fixed value. For example, users often copy to dozens of cells a simple reference to the previous cell in a row or column. When this is done, changing the value in the first cell immediately changes all the cells. It is also common to copy formulas in worksheets calculating repetitive transactions such as mortgage or auto loan repayments.

In either case, the user—mistakenly or not—may replace the formula in one of the cells with a fixed value. If the formula is not restored, the fixed value throws off all subsequent calculations with that worksheet. Spreadsheet auditors quickly detect and point out errors of this type, where a range of cells containing formulas copied in sequence is interrupted by a single fixed value cell.

Another pair of common errors in worksheets are circular and reverse references. A circular reference involves two or more formulas that derive their input values from each other, rather than from fixed numbers typed into the worksheet. Circular references are necessary in some complex calculations, but are more often a mistake unknowingly built in by the user. A related error is the reverse reference, where a formula refers to a cell that is calculated after the formula's cell. Either condition can create problems because each worksheet recalculation produces results based on the previous—not the current—values of the reference cells. In some situations, the formulas never "settle down" to a final answer. Spreadsheet auditors automatically identify all circular and reverse references, so the user can correct those not wanted before they lead to problems.

BEYOND AUDITING: INSIDIOUS ERRORS

The advantages of spreadsheet auditors are numerous: they work rapidly, they perform many checks, they are thorough, and, perhaps most importantly, they provide a literal evaluation of what the worksheet actually contains, not what its human developer intended or expects it to contain. But spreadsheet auditors are not the final answer to human errors in electronic worksheets, any more than spell-checking programs are the final answers to typographical errors in documents.

No auditing software can identify the most insidious human errors that creep into electronic worksheets: misplaced decimal points, poorly conceived formulas, inaccurate data, and erroneous assumptions.

In many situations, the only way to find these errors is to look for them specifically. There is no substitute for line-by-line checking of the input values entered, for example. Poorly conceived formulas and erroneous assumptions can only be detected by careful, thoughtful analysis.

For single users, worksheets that fail "reasonability" tests and that do not agree with known results should be carefully checked, cell by cell.

Users in job situations are luckier. They can ask a colleague who has not helped develop the worksheet to check it over. This is, by far, the best error checking method, because the one who conceives and develops a worksheet, like a proud parent, is often unable to see its flaws, weaknesses, and errors. The unemotional error checker, however, will often question every assumption in the worksheet, consider other ways to calculate particular values, and generally check all values and formulas. As a rule, they will usually find flaws in the worksheet the developer might never recognize.

Spreadsheet software today has become so easy and powerful that electronic worksheets are now larger and more complex than ever before. This makes them considerably more useful, but also leaves them more prone to human errors. The danger of human errors in worksheets will probably never go away, but it can be controlled if people will remember that computers are just fast, fancy calculators. It is we, the people who use them, who must be responsible for accuracy in the numbers we rely on. □

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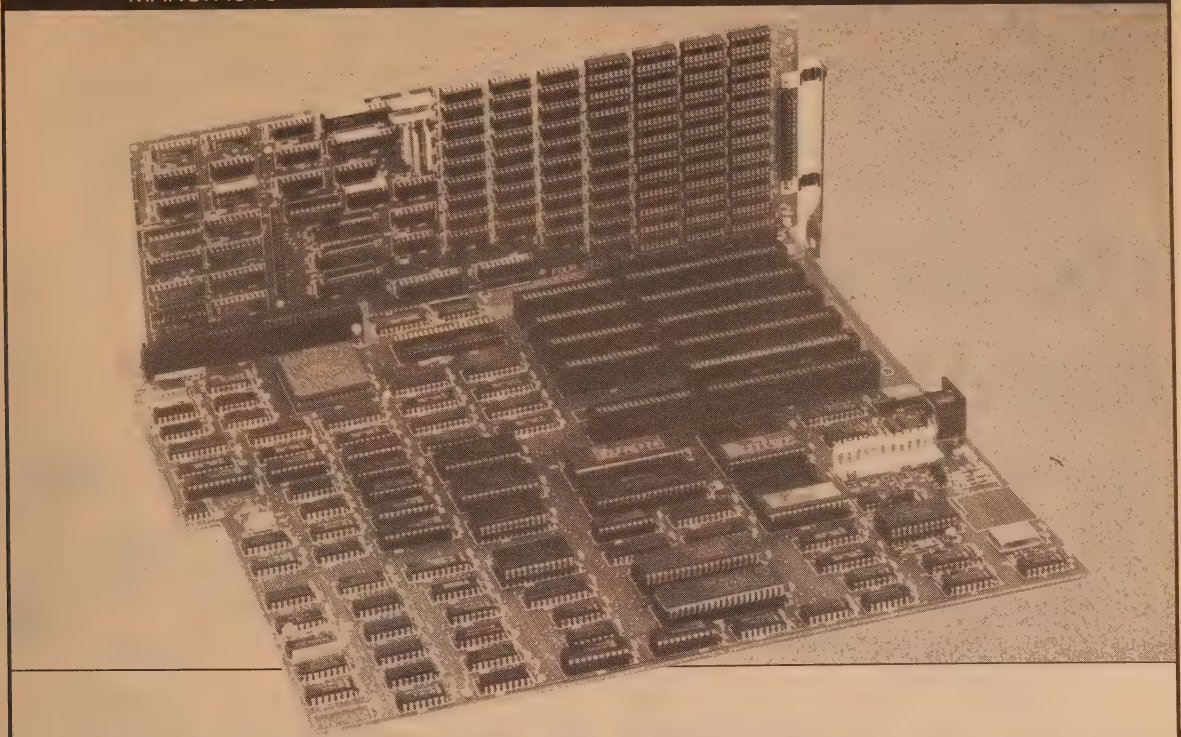

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The Lotus Aftermarket—HAL And Beyond

Consortium President Rick Gibson On The World Of 1-2-3

By Jeff Spurrier

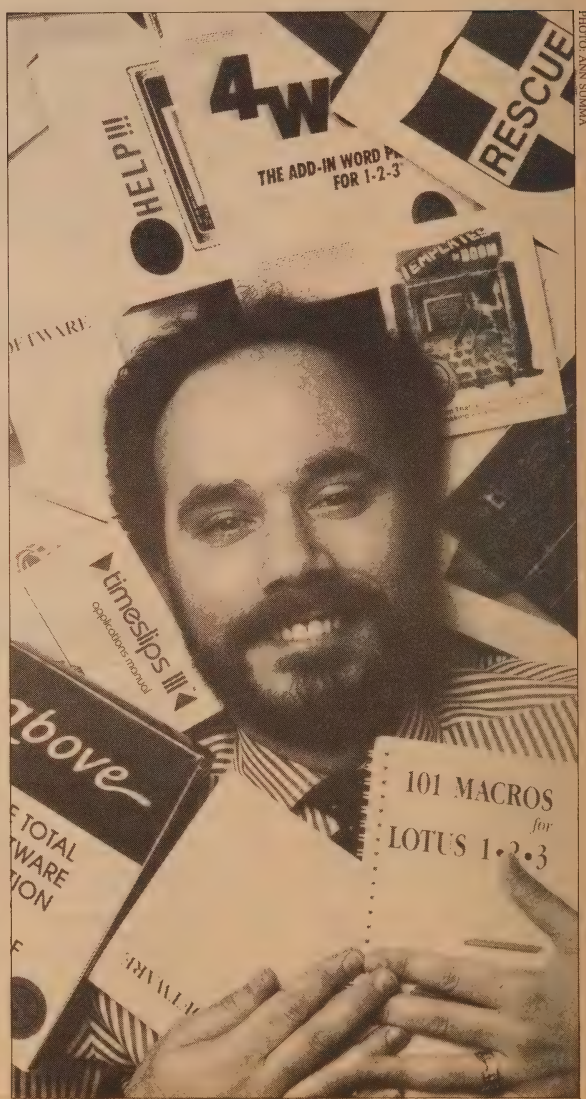

PHOTO: ANN SUMMA

"The problem in this industry is we've got a lot of needy users and a lot of great products, but the channel between them really stinks," says Rick Gibson, the president of The Consortium Inc. "It's like we have the oil in Alaska and the cars in California, but where's the pipeline?"

For many Lotus users, Rick Gibson *is* the pipeline. He was instrumental in the growth of GNP Development, the creators of *HAL*. Now he's the Chairman of the Board of 4-5-6 World, a direct mail/telemarket retailer and wholesaler which sells only Lotus-related products, as well as the founder of The Consortium, a company that functions as an agency for twenty aftermarket developers, some with only one product, others with as many as four Lotus-specific offerings (see sidebar).

Not bad for a guy that admits it's a struggle for him to wade through a *1-2-3* spreadsheet.

"I staunchly protect my reputation as a novice user," he says proudly. "In that way I truly understand all the people in business—the people with desks. I know how they feel."

With the introduction of The Consortium, he hopes they'll feel a lot better when it comes to using Lotus. The Consortium acts as a clearinghouse of Lotus aftermarket information for the entire range of interested parties, from the single user to the developer, corporations to the media. Among the services are free seminars for corporations and user groups, product demonstrations at trade shows, marketing data for members, promotion and publicity, product analysis, aid in product design and funding, dealer training, and a toll-free hotline for users of members' products.

Although barely a year old, the Consortium is riding a crest of aftermarket mania, fueled in part by Lotus' own stamp of approval on the genre. (The company recently announced its own series of spreadsheet enhancement products.) With illegal copying and sharing of programs, Gibson estimates there are probably between four and six million people using the two Lotus spreadsheet programs. The popularity of the programs—particularly *1-2-3*, which has sold over two million copies—has resulted in the creation of what he calls "a core operating environment."

"Lotus *1-2-3* is basically an open-ended system, which can do a lot on its own, but also has the allowance for hooks into it, on which you can add a host of specific applications, enhancements, add-ons, and add-ins," he notes. "I see products from all over the industry, both hardware and software, which have nothing to do with *1-2-3* which claim '1-2-3 compatibility.' Even competitors of Lotus are claiming Lotus compatibility. It's become such a standard."

That standard is what has created the aftermarket demand. The aftermarket is a new player on the software stage, a forgotten stepchild that has suddenly emerged as an attractive source of easy sales and customer satisfaction. Aftermarket prod-

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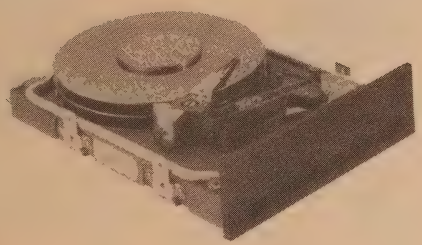

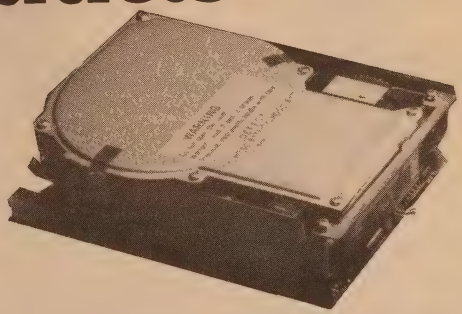

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ucts may be add-ons (which hook onto *1-2-3* applications and data) or add-ins (which operate seamlessly within the *1-2-3* environment). Either way, says Gibson, once a user is firmly committed to the "core operating environment of *1-2-3*," enhancement of the program is the sensible way to go.

"We're not saying 'Go buy *1-2-3* and look what you can do,'" he says. "We're saying, you've moved in this house, you've paid the moving expenses, put all your stuff away. You like it and then you look across the street and you see a house you think is prettier. What you don't do is go across the street and buy that house. Look what you've done to get your own house.

"It's the same with *1-2-3*. You've become married to *1-2-3*. You've got all your data in it, learned how to use it, the other 300 people in your company are using it. So what you do is put up new wallpaper, buy new furniture and appliances, fix up your yard, add a room—those are our add-ons."

The aftermarket that Gibson is focusing on is a variety of enhancements, ranging from the obvious, such as templates, macros and error checking, to "insurance" programs (which aid in getting back a lost spreadsheet), English language command translation, learning *1-2-3*, graphics, decision support systems, mainframe to micro re-formatting, utilities, speed-up and compression programs, "core" products (which link word processing and data base applications with *1-2-3*), and specialized spreadsheet programs (for users in architecture, medicine, and real estate).

It's a healthily diverse field, a validation of Gibson's belief that the Lotus aftermarket is "the largest and most definable marketplace in the industry."

HAL—THE BEGINNING

Of course it wasn't always that way. Before the Consortium, before the entire idea of an aftermarket, there was *HAL*—the most successful and revolutionary add-on yet.

HAL was the product of GNP Development, a bootstrap company started in 1985 by two Caltech graduates, Bill and Larry Gross. And helping them get the word out on the Human Access Language program was Rick Gibson as the company's Marketing and Sales VP—a job he almost turned down.

"*HAL* was a key product," says Gibson. "It proved there was a hell of an aftermarket. [Larry and Bill Gross] weren't as much software developers as they were inventors. They had a retail store that needed an accounting package, so they developed an accounting package (later sold as *CPA+*) to run the business. They decided to market *CPA+*, and that's when I got involved. I was the president of a consulting company. I didn't want to work for any more start-up companies. When I first met Bill Gross, who ran GNP then, I told him I didn't wish to be an employee of a software company. I warned him that most software companies are failures."

With Gibson pushing GNP to move away from a position as simply an accounting software company to a Lotus add-on developer, the small organization soon followed up *CPA+* with a handful of other Lotus-related products. As a result, users began phoning GNP with tech questions—about their own products as well as *1-2-3*.

"I learned there was a tremendous need on the part of the Lotus user for a product for guys like me—guys who could do a *1-2-3* spreadsheet but struggled like heck to get it done," he recalls. "I told Bill 'Most of the Lotus users—not the people like you or the 10% that are power users—are people with desks who wish it was easier and faster. What most people want is just the answers. If they could just type in plain English what they wanted the program to do, they would be delighted.'

"One day Bill called me into the office and he said 'Watch this.' He showed me a bunch of numbers in *1-2-3* in a column and he typed up in a box that said 'Request? at the top. He typed in 'Total column A' And all of a sudden the screen flickered and the total was at the bottom. I just said 'How did you do that? That was incredible!' He explained it was a macro he'd written. I said 'Why don't we start working on products like that?'"

At the Fall COMDEX in 1985, GNP announced *HAL* to a hungry horde of interested buyers (GNP had two 2,000-unit orders even before the product's release). A few months later, Lotus stepped in and acquired GNP, mainly for the purchase of *HAL*. The Lotus version of the program came out last November.

ENTRENCHING THE 1-2-3 STANDARD

Buoyed by the success of *HAL*, Gibson spent three months last spring talking to a variety of Lotus users and add-on developers, testing the water for what would become The Consortium.

"I thought there had to be other products out there that were as good as *HAL*, or half as good, or a quarter as good," he says. "And there had to be people out there developing [Lotus add-on] products that needed help, companies that were small, like GNP had been."

With the contacts he'd formed at GNP (and earlier as a Marketing VP for Nolan Bushnell's personal robot venture, Androbot), Gibson felt he could oil the gears for young developers, providing a link between inventors, users, dealers, investors, the media, and, of course, Lotus itself. Due to his role as "*HAL*'s uncle," he found himself in the unique position of being outside of Lotus and yet accepted as a trusted player in the *1-2-3* world.

"The Consortium got started with Lotus' acceptance, not approval," he says. "Lotus doesn't easily have relationships with third parties they don't own or have a hard-core contract with. I don't think it would have been possible for anyone other than a Lotus employee [to set up The Consortium]. And the problem with an employee that has left the company is that all of a sudden he becomes an outcast and a renegade. What I have done is get involved with the company and gradually shown Lotus that what we're doing is further entrenching the *1-2-3* marketplace. Everything we do makes *1-2-3* even more of a standard."

ENTER THE CLONES

But in the computer world, whenever there's a standard, pretty soon there's a clone that purports to offer the same capabilities—usually for much less. The idea of servicing the *1-2-3* clone add-on market is a touchy subject for both retailers and developers, particularly since Lotus takes a dim view of its imitators.

"Most companies that are interested in playing in Lotus' playground don't want to spit on their toys," notes Gibson. "I'm not knocking products that imitate *1-2-3*, but what you get with *1-2-3* is not just a great spreadsheet but [access to add-on] products that in a lot of cases will only work with *1-2-3*. It's like you buy a Ford and it uses Ford parts. *HAL* is not going to work with a clone."

However, some small developers

PARG And Consortium Issue Study Of Lotus Aftermarket

A recent collaboration between Jan Lewis' Palo Alto Research Group and The Consortium has produced a report on the needs of users in the Lotus aftermarket. According to PARG's Michael Handler, the report will be a useful tool for developers of products for this market—to, he says, "help the vendors identify more clearly who their market really is, and eliminate a lot of waste and trial and error on their part."

Handler explains, "Basically we find that many companies who are attempting to sell into the Lotus aftermarket do not themselves have a clear or defined direction to pursue vis-a-vis their marketing plans, competitive analysis, or even how to roll out and correctly present their product against all the other aftermarket products. With a solid foundation of market intelligence in relating to the needs and desires of Lotus users themselves, these companies would be in a much stronger position, and would be able to focus more clearly on their particular market segment or niche."

In researching the report, PARG and The Consortium first determined, by querying the corporate user base of Lotus products as to whether the need for such a study existed. The overwhelming response was that there was indeed such a need. They also determined, says Handler, "that Lotus users, even though they may already own an add-on product, almost universally have something, or some things, that they would like to do, or would like to have some feature to handle data differently. Where they might have a product that addresses *part* of their need, the field is still open for many developers to produce new products. This report should fit very firmly into their marketing plan, and help them peruse the market to search for those niches."

No price has yet been determined for the report, which will be released in late May or early June; however, says Handler, "we want to make it comprehensive and affordable at the same time."

What types of products are still needed? Handler suggests that, among other things, products to help users handle large quantities of data, transfer or combine spreadsheets, or import and export data efficiently are likely to be in great demand.

"We view The Consortium as a frontrunner in dealing with this particular marketplace," he says, "and we see a great rise in the interest given to the aftermarket, from all segments of the micro industry. We hope the timing of this study is appropriate, and welcome queries, either to Rick Gibson or myself." (For further information on this study, call The Consortium at 213/390-3403 or the Palo Alto Research Group at 415/960-0556.)

—*Mary Eisenhart*

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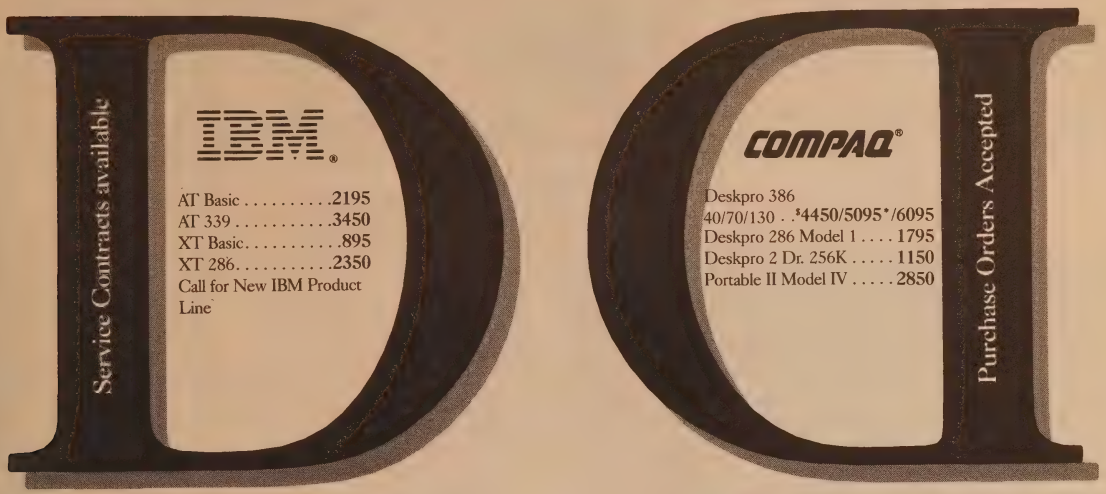
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who have trouble getting through to Lotus have no problem working with clones. How individual Consortium members deal with the clone market is up to them, says Gibson.

"In a lot of cases, because some of our members are small, they've not gotten a lot of attention from Lotus, so they go to the clones. They go to Adam Osborne [of Paperback Software, publishers of successful 1-2-3 workalike *VP-Planner*] and ask for help. They've got a 10% chance they may be heard. If they go to Lotus, they've got a 1% chance."

Retailers are even more likely to look upon clones favorably, he says.

"I think the channels are very fickle. They're not really comfortable with the software business generally, let alone the add-on business. Just as a lot of add-on manufacturers will do anything to get products sold to survive, I think the channels will go to the path of least resistance. There are a lot of retailers in the marketplace, and if they can sell *VP-Planner and* make $100 on it, they'll sell it. It's not a question of loyalty or philosophy, it's a question of margin."

Margins are a concern for developers as well as retailers. For this reason, Gibson says The Consortium is not a democracy or an association. The company makes an effort to avoid representing developers who are rivals in the marketplace. The Consortium can't be all things to all people.

"Esther Dyson once warned me to take a stand," he says. "She said 'You should be the Procter and Gamble of the software industry and enable these companies to have the power behind them to get noticed.'"

STRATEGIES FOR THE LOTUS AFTERMARKET

Getting noticed means not only increasing sales, but, in some cases, finding investors for struggling software developers. Rather than provide a shield for independent manufacturers who are fearful of being bought up, The Consortium may be a way to locate a friendly suitor. Being a conduit between manufacturers, publishers and users is the core of Gibson's crusade, and he makes it clear that while his door is open to developers with good ideas—"I want to go on record as being in the market for the next *HAL*," he says—developers have to remember their role is a reactive one.

"*HAL* was a reactive product," he says. "It was made because people needed it. My goal is to get more manufacturers to do even informal research to find out what Lotus users need. [Products must be] market driven as opposed to marketing driven. It's so much easier and cheaper, and you get richer when you make products that people need, rather than when you have an egotistical brainstorm for a product and you go bullheaded forward, raise $5 million, and then find out no one wants it.

"*Javelin* is an example. What a wonderful product. But they tried to tell millions of PC users they should change from 1-2-3 to *Javelin* or buy *Javelin* instead. And I don't know if they even have 3% of the market 1-2-3 has."

In an attempt to find out just what Lotus users need, The Consortium has recently finished a market research project with the Palo Alto Research Group focusing exclusively on the Lotus aftermarket. (See sidebar.)

INTEGRATED APPLICATION PACKAGES—CLOSE, BUT...

Ironically, one company that could have benefited from such information was Lotus itself. The much ballyhooed introduction of *Symphony* seemed to spell the end of 1-2-3. The integrated applications of the program were seen as an answer to the add-on needs of the Lotus user. Unfortunately it raised more questions than answers.

"I'm not a *Symphony*-phile," says Gibson. "I think what was being invented sounded good. The problem is that integrated products typically are strong in one area and weak in others. The reason I like add-ons is that they're easy to sell, they're inexpensive. They serve a specific purpose and people get value out of them right away. All we're talking about is accessories. People love accessories. With *Symphony* they tried to reinvent the wheel; they made a pretty good wheel but unfortunately everybody already had the original, and everybody was using it and liked it. A lot of people said, forget that new wheel. I'm going to look for hubcaps and better tires.

"That basic wheel is incredibly powerful and open ended. Rather than have you give me a whole contraption that does everything—I have to accept your word processor—let me choose the accessories. When I buy a suit I pick my own suit and ties. I don't go in and they tell me which shirt and tie goes with something. I might get a little ticked off if I had to buy suits like that."

Charitably, he says that he doesn't think that *Symphony* was a move by Lotus to take over the add-on market, merely an attempt "to make a new invention, to take 1-2-3 one step further."

And just because *Symphony* has failed to replace 1-2-3, that doesn't mean that integrated programs are doomed to failure, unable to battle effectively with the guerrilla tactics of add-on suppliers.

"I feel in my gut that a number of years from now there will be integrated software again," he says. "I think it was too early. They couldn't truly integrate the best spreadsheet, the best word processor, the best data base, and do it all in one product and make them all as awesome as 1-2-3. The technology didn't exist to do that. I think it's a hardware limitation which created the lack of capabilities in developing the software.

"I've been in this industry five years, and before that I was in the consumer electronics business, and I watched compact stereos become integrated packages in cabinets, in one unit. I think that a number of years from now there will be integrated packages. These add-on packages are the bridge to 1992. A few years from now there will be great integrated software packages, and right behind them will be add-on products to go with them."

Even if Lotus did come out with the add-on killer integrated package, The Consortium would still have its finger in the software pie. In May the company began a new division aimed at the data base add-on market.

"There will always be an add-on market," says Gibson. "Make a product that has a lot of users and there will be people who have other needs that aren't fulfilled, and there will be inventors that see new things that can be done. And those two groups—with the help of people like myself and the channels and the media—will find each other." □

Enhancements From The Consortium

When it comes to listing the essential generic Lotus add-ons, Rick Gibson immediately cites *HAL*, "because I can't use 1-2-3 without it." After that, it becomes a tougher call.

"There are products that provide functions, utilities, and there are applications. One product I think would be extremely important would be *101 Macros* (from Macropac International). If you don't want to write macros, its a library. Why don't half of the Lotus users have it?

"If you do spreadsheets, I'd say the *Cambridge Spreadsheet Analyst* (from Turner Hall) which provides error checking and spreadsheet analysis. Another I might consider right away would be something for emergencies, like *Rescue* (from Spectrum Computer Software), because a lot of times you damage a spreadsheet and as a result you can't get it. Also there's *SOS* (from Goldata Computer Services) which automatically saves your spreadsheets for you as you're working on them."

For more specific needs, The Consortium members offer: *Datasurf* (from Bridge Software—3-D graphics and charts), *Cell/Mate* (from Clarity Software—English documentation and error-checking), *Menu System* (from Cottage Industries — unlimited user-defined, nested menus), *Schedule Graphics* (from Digital Engineering—graphics for project planning, organization and tracking), *Goal Solutions* (from Enfin Software Corporation—decision support systems, up to five parameters), *Quickcode* (from Fox & Geller Inc.—macro library, programming language, debugger) *Quickmac* (also Fox & Geller—allows English-like programs while running 1-2-3), *Keymac* (also Fox & Geller—lets the user create macros; the package can be purchased as part of *Quickcode* or separately), *Passkey* (also Fox & Geller—a password security program), *Management Control* (also Fox & Geller—a hard disk utility), *Help* (from Goldata Computer Services Inc.—for creation of windowed help screens), *Your Move* (also Goldata—captures data directly offscreen while running one application for use as keyboard input into a second application; includes macro capability), *Ready-To-Run Accounting* (from Manusoft Corporation—for accounting with 1-2-3; includes general ledger, accounts receivable, payable, and payroll), *Timeslips* (from North Edge Software Corporation—a memory-resident time/billing system with time tracking, reporting and graphics), *Quick Tax* and *Estate Tax* (both from Ryan Software Inc.—tax planning under new tax laws with what-if capability and quick calculation), *Spreadlink* (from Saturn Business Systems Inc.—links mainframes to micros and translates data and reports into spreadsheet format), *Templates Of Doom* (from Solar Systems Software—an interactive 1-2-3 adventure game and tutorial), *Above Disc* (from Tele-Ware West—an expanded RAM memory program without a board), *Note-It* (from Turner Hall—allows the attachment of notes to worksheet cells), and *SQZ!* (also from Turner Hall—compresses data up to 95%), *4 WORD* (from Turner Hall—an add-in word processor for 1-2-3).

Information on all these products is available from The Consortium, (213) 390-3403.

—*Jeff Spurrier*

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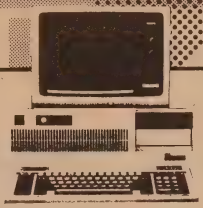

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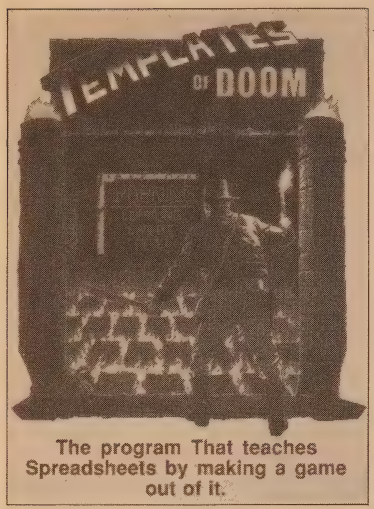
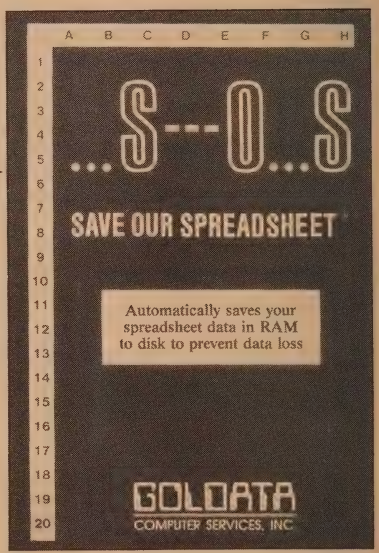


Learn Spreadsheets With Templates Of Doom

Templates of Doom, from Solar Systems Software, takes a witty, tongue-in-cheek approach to learning spreadsheets. The program is comprised of 24 puzzle-like adventures that require the use of different spreadsheet commands or formulas. Each puzzle is progressively more difficult and may be separated from the story to be used as a classroom exercise. Written by Pete Antoniak, Solar Systems Software, 8105 Shelter Creek, San Bruno, CA 94066. (415) 952-2375.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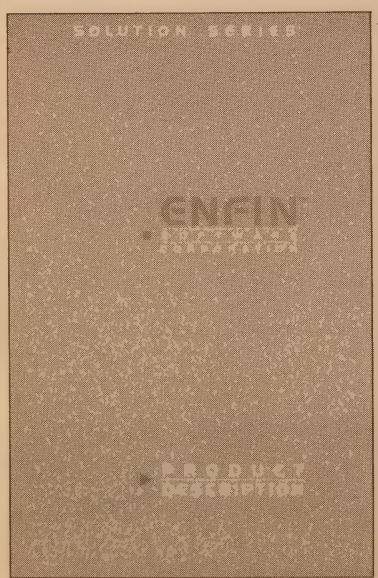
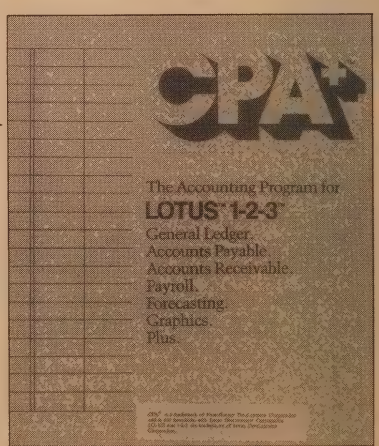


Optimal Values In Lotus

Optimal Solutions is the second module of ENFIN's Decision Support Solution Series. It adds to *Lotus* the ability to find optimal values for defined variables in *Lotus 1-2-3* and *Symphony* worksheets. The program has applications in areas from finance to transportation. The user can easily define the problem and view the results from window without exiting *Lotus 1-2-3* or *Symphony*. ($249.95) ENFIN Software Corporation, 6920 Miramar Road, Suite 106-A San Diego CA 92121. (800) 722-4272.



FrontRunner Upgrades CPA +

FrontRunner has released *CPA + 3.0*, an upgraded version of its *Lotus*-driven accounting package. The program has been re-written to take advantage of the 2.01 release of *Lotus 1-2-3*. New features include increased reporting capabilities, improved graphing functions, enhanced memory management, multiple company support and a revised, easier-to-use manual. ($295.) FrontRunner Development Corporation, 14656 Oxnard Street, Van Nuys CA 91411. (818) 376-1322.

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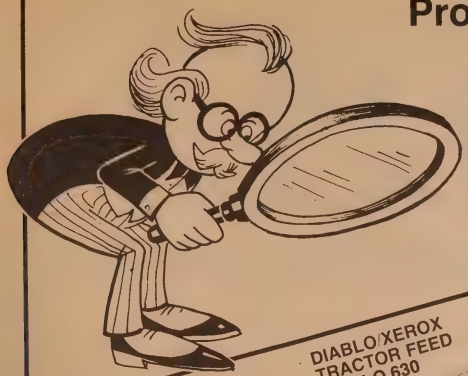

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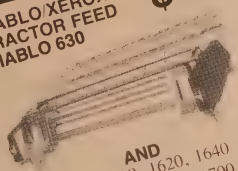

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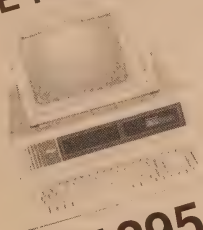

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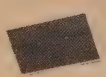

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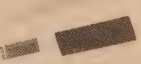

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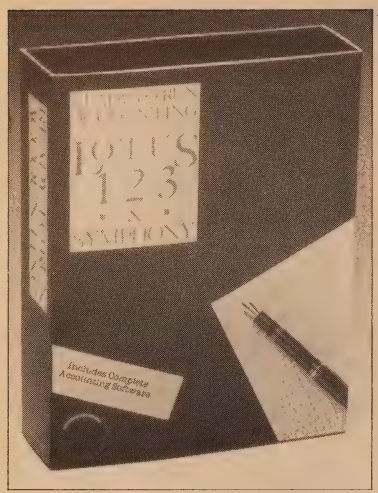

business. While General Ledger is the only module a small business may need, larger businesses can add, Accounts Payable, Accounts Receivable, Inventory/Billing and Payroll. Modules cost $49.95 to $69.95. Manusoft Corporation, 8570 W. Washington Blvd., Culver City, CA 90232. (213) 559-1561.

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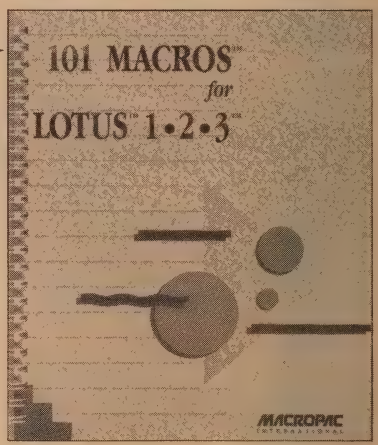
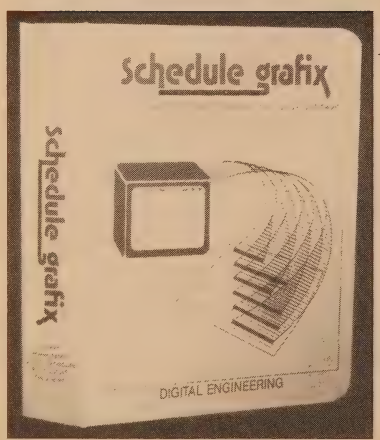
Macropac Packs In 101 Macros



Macropac International has released an enhanced version of its *101 Macros For Lotus 1-2-3*. Due to the upgraded 2.0 and 2.01 versions of *Lotus 1-2-3*, all the macro's found in *101 Macros* are written in both the 2.0/2.01 language and *Lotus 1-2-3*'s original 1A language. The time saving two-key-stroke combinations work without any prior set-up. ($69.95) Macropac International, 19855 Stevens Creek Blvd., Suite 168, Cupertino CA 95014. (800) 227-2400, x. 945.



Control Projects With Schedule Grafix

Schedule Grafix From Digital Engineering is Personal Scheduling Graphics Software (PSGS) that works as an add-on to *Lotus 1-2-3*. It enables a user to schedule, lay-out, graph and control all phases of a project. Designed for the typical PC user, it gives individual users access to sophisticated software without months of training and hours of setup. Digital Engineering, Engineering & Programming Consultants, P.O. Box 6076 Glendale, AZ 85312-6076. (602) 439-3245.

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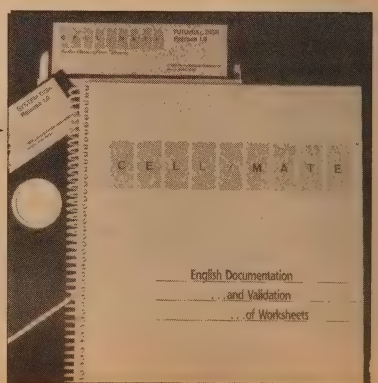

Clarity Software's new release of Cell/Mate produces automatic English documentation of *Lotus 1-2-3* and *Symphony* worksheets. It also provides over 30 error-checking reports. The new release supports expanded memory boards conforming to the LIM standard such as the Intel AboveBoard and the AST RAMpage. The new release is available to current registered users for a $35 upgrade fee. Otherwise the price is $89. Clarity Software Corporation, 13276 Research Blvd., Austin TX 78750. (800) 822-7890.

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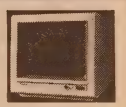

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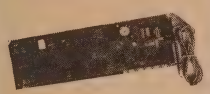

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MicroPro Promises New WordStar For CP/M

By Serge Timacheff

In a world dominated by MS-DOS, the CP/M user has a hard time finding new software. It's noteworthy, then, that one of the leading software publishers in the DOS world should commit itself to a CP/M version of its best-selling package.

MicroPro recently released an updated and substantially enhanced version of *WordStar* for DOS machines. Upon careful consideration, the company has decided to release a version of *WordStar* 4.0 for CP/M. Those who regard the older operating system as an outmoded relic may find this surprising, but according to Lee Lensky, MicroPro Public Relations Manager, the new product addresses the needs of a significant market. "We continually hear, without any prompts, from CP/M users that they want an update," he says. "About three months ago I mentioned the possibility of doing a CP/M update in the Osborne Users' Group newsletter. Since that time, I've been getting 10 to 20 pieces of mail a day saying 'I'll buy it.' The best estimates I have say that there are between 2-300,000 CP/M machines out there, at least. I know that about 40 percent of those use word processing, most of them with *WordStar*. People have an investment in that—in both systems and in MicroPro, and we feel a responsibility to get back to fulfilling our obligation to them."

THE CP/M FACTOR

The new *WordStar* is the result of an unusual merger in which MicroPro acquired NewStar Software, a company started by MicroPro veterans led by Stan Reynolds. Under Reynolds' direction, NewStar marketed its own word processing package, *NewWord*, a *WordStar* "clone" which received critical praise and commercial success as easier to use and better supported than the MicroPro product. In the wake of NewStar's acquisition, Reynolds and many of his team have returned to MicroPro, where they play an essential role in the development of the new *WordStar*.

Both MicroPro and NewStar historically supported the CP/M market, even though the "progressive" MS-DOS crowd chided them for trying to feed a corpse. For them, at least, it works—both companies have succeeded in profiting from the CP/M following, and have served it well while dozens of other software companies chose to forsake the eight-bit users.

MicroPro promises a CP/M *WordStar* upgrade, Version 4.0, by the end of this year. Since the DOS version required extensive rewriting, the CP/M version is expected to involve a similar effort.

Former *NewWord* Product Development Vice President Peter Mierau supervises the CP/M upgrade effort, just as he did for MS-DOS. Mierau was the *NewWord* 3 engineer for both MS-DOS and CP/M, as well as for other NewStar products.

Interestingly, Lensky maintains that the CP/M *WordStar* 4.0 will not necessarily be MicroPro's last word in the CP/M marketplace. "We're committed to keeping this product alive. To rule out any further upgrades at this point would be contrary to what we've been saying. We're going to get this one update out for CP/M and see what the reactions and responses are." However, users of CP/M 80 and CP/M 86, which have now been withdrawn from the market permanently, will probably have to do without—although the internal discussion of the issue is far from over, the current consensus at MicroPro is that the company could not profit from selling software for these systems.

Reynolds himself takes a positive but cautious view on the issue of CP/M commitment "I believe in a *modest* commitment, but I don't want to end up spending several hundred thousand dollars in the process.

"Let me badmouth the people who were saying that nobody supports CP/M," he continues. "They're wrong. They're entirely and completely wrong. What *is* true is that the CP/M marketplace isn't buying anything. NewStar made the product and sold it as best they could, but there was a very small market for CP/M with people flocking to the IBM because of its standardization. And the people that do have CP/M machines are not willing to pay money.

"Nobody understands better than the software companies how hard it is to make and support software and still profit. It's almost impossible to make a $99 software product unless you sell it by the thousands and don't support it very much."

Currently, the upgrade from *any* version of *NewWord* or *WordStar* to *WordStar* 4 will cost $89 plus $5 shipping and handling. Brand new, it costs $495. Lensky also says the CP/M upgrade *may* cost less than the MS-DOS version, but no final decision has been made.

MicroPro hopes that as many as 95% of CP/M computer owners will buy the upgrade, offered to *NewWord* and *WordStar* owners alike. Yet to be decided are the new features for the CP/M upgrade and which systems will be supported. "We want to hear from people," says Lensky.

NEW FEATURES

MicroPro has yet to decide on new CP/M features, but some features are a good bet for eventual inclusion. Portions of *NewWord* 2.17 (the last CP/M version) that didn't exist in earlier versions of *WordStar* are likely to appear in *WordStar* 4.0. For MS-DOS, the *WordStar* upgrade contains an undelete command, on-screen boldfacing and underlining, better and more extensive printing support, and MS-DOS subdirectory capabilities. The *WordStar* spelling corrector and the WordFinder Thesaurus are included in the new version. The NewStar indexing and table of contents generator, which, according to Lensky, "is not quite as sophisticated as ours was, but is a hell of a lot easier to work with," is also part of the deal. The program will also offer an auto-patcher and a detailed customization menu to allow users to make installation patches from a menu instead of having to struggle with the actual code.

Reynolds says there may even be some "quasi-graphics" for CP/M: "In some sense, the box- or line-drawn characters that *WordStar* 4 supports for MS-DOS aren't actually graphics—we're just using the extended character set. That would be something that could be put into the CP/M version, but it would be very terminal dependent, of course."

USER SUPPORT

A big part of the upgrade effort involves user support. "We've got about a $300,000 investment in new data processing support systems in customer service for record and product tracking," says Lensky. "The phone staff has doubled since 1986 and we're continuing with free service. We've also added a premium service, which gives you a toll-free number and unlimited calling with about a two minute response. That costs $65 for six months and $90 per year." *WordStar* also instituted a 90 day warranty policy which, in addition to covering defective media, gives your money back if the product does not perform as MicroPro says it will. During the 90 days, you have access to a free priority support line that also sports two minute service. Large corporate support policies are also available. If you don't ask for help soon after purchasing, you only get 45 days of free support instead of the 90, so it's worthwhile to call with any kind of a question to activate the 90 day plan.

Meanwhile, it's expected that the *WordStar* documentation, a work of legendary excess verbiage and opacity, will follow the *NewWord* style of simpler and more direct communication.

A TOUGH MARKET WITH FEW COMPETITORS

The decision to support CP/M gives MicroPro a virtual monopoly in the CP/M word processor market. Other popular and successful CP/M word processing manufacturers of the past, such as Palantir, Inc. in Houston, installed thousands of eight-bit programs until two or three years ago. They now have withdrawn from the market, and shy away from possible reentry. Much of their reasoning has to do with support difficulties and the fact that CP/M is far from standardized. Nonetheless, both MicroPro and NewStar, prior to its acquisition, have shown a profit in CP/M sales.

The future is probably in the hands of the CP/M user community. If MicroPro feels that hundreds of thousands of CP/M users are eager for an update, perhaps there's still enough pie for others to have a slice. Perhaps the software companies' complaint that none of the CP/M users "are buying" is a double-edged sword—why go shopping when there is so little to buy?

In any event, with a little luck, the CP/M *WordStar* upgrade will be out soon and will fulfill a long overdue promise. □

Copyright ©1987 by Serge Timacheff. *Serge Timacheff is a writer living in Alameda, CA, and is the Managing Editor of the* Morrow Owners' Review *and a partner of Exposure Public Relations. He has worked in the media and the software industry for ten years.*

CP/M Upgrade: Your Comments Invited

Make yourself known! Tell MicroPro what features you want to see in the CP/M *WordStar* upgrade and what system(s) you want supported. MicroPro wants to hear from you even if you're just voicing your opinion about the CP/M upgrade in general. Write directly to:

Lee Lensky
CP/M Update
MicroPro International
33 San Pablo Avenue
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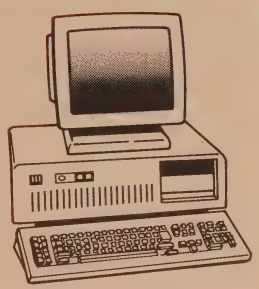

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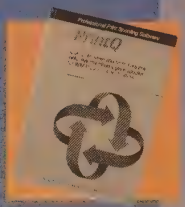

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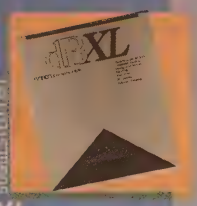

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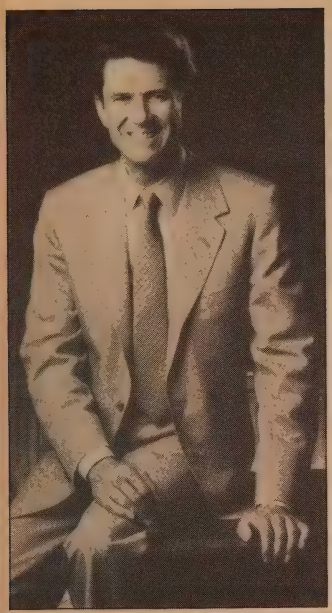

President David Kay of Kaypro: "We've had one rough time — the transition from CP/M to IBM compatible. Most analysts agree that we're the only company that has made the transition."

Kaypro Enters The 386 Era

By Robert Beauchamp

In 1982 Kaypro, founded by David Kay's father Andrew, left the digital instrument business to make its first computer. The portable Kaypro went head to head with Adam Osborne's portable; Kaypro prospered, Osborne Computer eventually went bankrupt. But while the industry was switching over to the IBM PC/MS-DOS standard, Kaypro lagged behind with its CP/M machines and sales fell.

About a year ago, however, things turned around for Kaypro (see "Kaypro Fights Back," February 1986), and Kaypro's fortunes have been on the upswing ever since. Recently at the West Coast Computer Faire we caught up with David Kay to see what was new with the so-called "roller coaster company." While we were there, who should stroll into the Kaypro booth and shake hands with Kay but Adam Osborne himself! (According to Kaypro public relations representative Michelle Breyer, Osborne and Kay are working on a deal to bundle Paperback Software products with Kaypro computers.)

Whatever these old nemeses may be up to, they're probably enjoying this particular portion of the roller coaster ride.

So, this has been quite a year for Kaypro.
It certainly has. We've turned some corners and have established ourselves as the premier supplier of desktop 8088 machines. With the most features for the dollar and the best quality out there, I think we're doing it the right way.

You have a new machine based on the 80386 microprocessor.
That's right; we're the only company besides Compaq that I know is actually shipping.

Isn't it risky to ship out 386s before IBM does?
No, because I think that there is such a tremendous market inertia for the software that's been written. People want to run it faster and they want to run it on a bigger, more multi-faceted machine. The software is going to continue to be written around the DOS that's already existing. IBM, if they do it right, will come out with an open architecture 386 that's downward and upward compatible. But they may not do that, in which case it will be a year before any software is written. So it won't really affect the market too much. That's my view, but I guess we'll find out April 2nd.

The best thing that could happen for the industry, of course, is for IBM to get out there with its 386 and establish a standard. Then everyone can charge ahead and get new software, get a new generation of machines and a whole new marketplace opened up with expert systems software. But until it comes out with the hardware, there's not going to be a DOS. And without the DOS you can't run applications.

Do you think there is going to be some kind of new standard? Might IBM just bypass the 386 entirely?
They could, you never know. It's unlikely. I think IBM sees its market share has been dwindling because it hasn't kept up the features on its products. I think it sees that it is a big piece of a bigger market that is much bigger than all of the proprietary market.

Could you talk about your new desktop publishing package?
We see a tremendous dealer interest in that so we're going to be shipping the first week in April. We have a couple systems here at the Faire that are being shown to dealers. It was really conceived by my marketing people and seems to be quite a hit.

So you're going to offer the PC, printer and software?
Right. I think it'll be the first time that a whole package has been put together in just one complete system. Dealers can, of course, patch these things together, but it's difficult. The service is very difficult when they don't know what a problem is or who to call. They might call Ventura, they might call GEM, they might call Kaypro if we supplied the computer, or they might call Epson on the laser printer. You never know which one it is. With our system, we'll back it 100%, and that's what they want.

Is this idea of offering everything together the same philosophy Kaypro showed in offering its first computers as complete packages?
It is the same philosophy, and it's the main reason why the dealers will stick by Kaypro and why there is such dealer loyalty. I know George Morrow once said that dealer loyalty was an oxymoron. But he didn't know what to do to get the dealers on his side. He didn't develop that liaison and that rapport, and I think that's what Kaypro really stands for. We're the champion of the independents and we've been that for five years. We feel very strongly about maintaining that position and being a high profile, service oriented company which really takes care of its dealers.

So you think that rapport with the dealers is one of the keys to the upsurge in your business?
Absolutely. The transition from the CP/M products to the MS-DOS products was obviously a tough time for the dealers because they were staying loyal to Kaypro, but we didn't have a product that you had to have to be in the market. Now we have it, and we're reaping the benefits.

You talked about the tough times and then the good times, and you read so many stories that call Kaypro a rollercoaster company—do you see yourself that way? Is that really that uncommon in the computer business?
No, I don't think we're really that way. We've had one rough time. It was a transition from CP/M to IBM compatible. I think that most analysts even agree that we're the only company that has made the transition.

And all the other ones?
They've gone into Chapter 11. I think we grew very fast, but I don't think we're a roller coaster company.

Back to the 386. Is it going to be your foundation, or is it just going to be one of a series of computers you'll offer?
My prediction today is that a 386 architecture will be the next standard. That may change in six months, but right now that's my best guess. It has enough power to run the kind of software that needs to be written for education, for better ease of use, interfaces, voice, and real time animation—all these things that just haven't been done yet. They're out of

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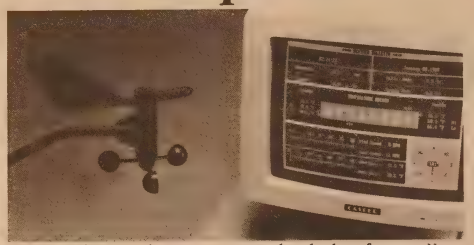

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the purview of computers because we've been stuck in the old standard. Now the 386 has the power to become the new standard.

We don't really have a hardware standard, because Compaq and Kaypro haven't been out there quite long enough. Although if we continue to be alone out there and other people come along and consume the things, we could very well become the hardware standard.

To have a standard you have to have hardware and a DOS. And then the ISVs can go to town and create a huge new marketplace out there—which is what we're anticipating.

Do you see some other operating system superseding Microsoft's DOS?
Well, rumor has it that it's waiting for IBM to announce before they come out with one. But the DOS it's going to come out with is a 286 DOS, not a 386 DOS. So we're still playing a waiting game that is similar to when IBM came out with the Peanut. Although I don't think any company is going to go bankrupt over it, we have to some lesser extent the same kind of confusion going on.

Do you see this making sales sluggish? Are people unsure about what they want now or might want in six months? Are they unwilling to invest in a computer right now?
No, not too much; I think people are buying. They have a pretty clear idea about what they want. I think the real surge in sales will come when the new standard has been out there for a while and the software that utilizes this chip to its maximum is on the market. That's when we'll see a great surge in sales.

The person running a 20-person office who wants to network knows that for another $2000 a 386 is going to be plenty of power for the next five years. He's not worried if IBM will come out with something better. It doesn't matter. If it will run his network, he'll hook his office together. To him it's a piece of office equipment. I'm saying that the standard will create a big new market for those who heretofore decided that they weren't quite ready to get excited about personal computers.

So you think the 386 will be the standard for the next five years?
I think it will.

And not a 486?
Well, that's part of the confusion. We have a 386 and we have a 286. And we still don't have a DOS for the 286. IBM hasn't sanctioned anything for the 386, and now you're talking about a 486? There is a lot of confusion. And that's detrimental to anyone but people who have been around computers for a long time. For those who are buying their second computer, there is still a huge market there. But for opening up new markets?

It was said that there were 60 million desktops in the country that needed microcomputers on them. Well, there's still 40 million that don't have computers on them. Why? Because the first 20 million were either early adaptors or close to early adaptor-type managers. Other people are waiting for something that's easier to use.

And Kaypro's ready to sell them that 40 million?
You bet. Our main thrust is to keep pushing our service and the features of our product. This is catching on and has created a lot of momentum for us at the present time. We really push the eight points in our ad. We run three times faster than IBM, we guarantee IBM compatibility, we run all the video standards on the monochrome monitor, the software, of course, is bundled, and all these kinds of things that no one else really gives you. We have these things that a few years ago would have been very hard for the public to understand. But now the market is more and more up on what you should look for when you go buy a computer. They already now it should have two drives and a keyboard. That part they know, thank God.

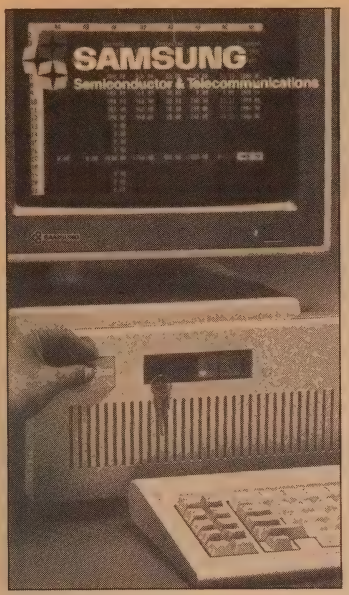
UPDATE

In the wake of IBM's new product announcements on April 2, *MicroTimes* called Kaypro to get a reaction to the new releases. As David Kay was out of town we talked to Executive Vice President John Hentrich.

When asked how he felt about the new 386 machine announced by IBM, Hentrich said that the people at Kaypro were very pleased—that the introduction of a 386 machine by IBM legitimizes the technology and opens the way for new applications to be written which will drive the marketplace.

Hentich offered an interesting analysis of the new IBM computers. He said that IBM introduced a proprietary machine to lock up the Fortune 500 market. This will hurt competitors like Compaq that have decided to go head to head with IBM in the corporate marketplace, he said; it will not, however, hurt Kaypro, because Kaypro's market strength lies with the independent dealers who sell to medium and small businesses and individual users. He quoted a *Wall Street Journal* article which said that IBM may have captured the Fortune 500, but by doing so they have isolated themselves from the rest of the world.

Kaypro believes that the 386-based computer is the machine of the future. This is especially true for those who have been waiting for a more powerful and simpler machine. Kaypro is now ready to reap the benefits of a legitimized technology, an operating system that will take advantage of the powerful 386 microprocessor, and the multitude of more useful and powerful applications that will be developed now that IBM, at last, has a 386 of its own. ☐



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TurboMax Boards:
Speed And Software Compatibility For Macintosh Power Users

By Jim Wolcott

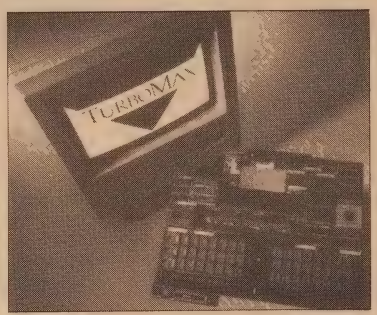
For many Macintosh enthusiasts, the introduction of Apple's Macintosh SE and Macintosh II was both disappointing and exciting. From a performance standpoint, the SE is little more than a Macintosh Plus with a cooling fan and an extra floppy drive, with the promise for future expansion. On the other hand, the new Macintosh II is the high-powered key to the Mac's business applications, equipped with Motorola's high-performance 68020 Central Processor Unit (CPU) chip, the 16 MHz clock speed (doubled from 8 MHz), and a 68881 floating-point math coprocessor.

Unfortunately, the Macintosh II is priced well beyond the reach of most computer hobbyists, and won't be available at all until early this summer. And Apple has announced that the updated SE, unlike the Macintosh's previous evolutionary steps, doesn't lend itself to an upgrade package for earlier machines.

Which leaves the third-party developers to answer the needs of performance-hungry Macintosh owners throughout the world. In view of this performance void, MacMemory of San Jose, California, has recently released its TurboMax performance-upgrade for the Macintosh. Depending on the features and options selected, a TurboMax-enhanced Macintosh can end up with performance substantially better than a stock Macintosh SE, and, since it's based on the standard-issue Macintosh 68000 CPU, it should retain complete compatibility with existing Macintosh software.

MacMemory's TurboMax offers a variety of performance features. The standard-issue TurboMax expands the RAM out to two megabytes, doubles the processor's "clock speed" to 16 MHz, and adds a new "high-speed" SCSI port. Depending on a user's lust for power, there are different options that can be added to the TurboMax. The 68881 floating-point math coprocessor (which was installed on our test unit), will dramatically increase the processing speed for arithmetic-intensive programs. Also on the option roster are 20- and 40-megabyte internal hard-disk drives, and a provision to support a large-screen monitor.

Thanks to the shape of the circuit board, the TurboMax will work on either a Mac 512K (enhanced), or a Macintosh Plus. All modifications are made to the inside of the Macintosh. The only visual clue that the TurboMax is installed is the routing of an auxiliary high-speed SCSI port, which covers the battery compartment to the rear of the computer. The TurboMax board is equipped with 1.5 megs' worth of memory chips, and, as installed, offers two megabytes of RAM memory (on the one-meg Plus, only 512K of the original motherboard is used; the TurboMax bypasses the other 512K).



The TurboMax board clips onto the motherboard's existing 68000 CPU; a special plastic clip is provided, and no cutting or soldering is required for installation. With this clip, the standard 68000 chip is bypassed, routing the processing chores to a second 68000 chip on the TurboMax board.

According to John Lazano, the engineer in charge of the TurboMax project, there were two reasons for not using the Macintosh II's 68020 CPU. "When we started work on the TurboMax, Apple wasn't clear about what they were doing with the '020.' Our number-one concern for this product was 100% software compatibility. We wanted to use the processor that we knew worked with all the Macintosh software, and run it as fast as possible. The other consideration was price. The 68020 would have added hundreds of dollars to the final price of the TurboMax.

"The only applications we've found that are not compatible with the TurboMax are games. That's it. But we feel that the kind of customer who will be attracted to the TurboMax isn't going to use it to play games. We're after the corporate user who's tired of watching that wristwatch on the screen."

To power the TurboMax board, MacMemory has designed a sub-chassis for the Macintosh, which mounts in the area occupied by the internal floppy drive. This new sub-chassis is an intricate steel stamping, designed to locate the internal disk drive, mount the auxiliary power supply board, and serve as a mount for an optional 20- or 40-megabyte internal hard-disk drive. The sub-chassis also features a cooling fan, which proved to be quiet and unobtrusive in use.

MacMemory recommends that the TurboMax be installed by certified Apple technicians who have completed Level 1 or 2 of Macintosh training. However, the installation instructions are clear, and anyone familiar with a soldering iron and a volt meter shouldn't have any trouble completing the installation in about three hours. No drilling or other permanent modifications are involved with the TurboMax: thanks to the clip-on socket used for the 68000 CPU, a TurboMax upgrade can be installed and removed without a trace.

PERFORMANCE: TURBOMAX VS. MACINTOSH PLUS VS. PRODIGY 4

Comparing the performance of the TurboMax to a standard Macintosh Plus is difficult. Most high-performance software available for the Macintosh will recognize extra RAM memory, and take advantage of it if possible. Since the TurboMax comes packed with two megs of memory, the contributions of the higher clock speed and the coprocessor can be clouded by the performance of the extra memory.

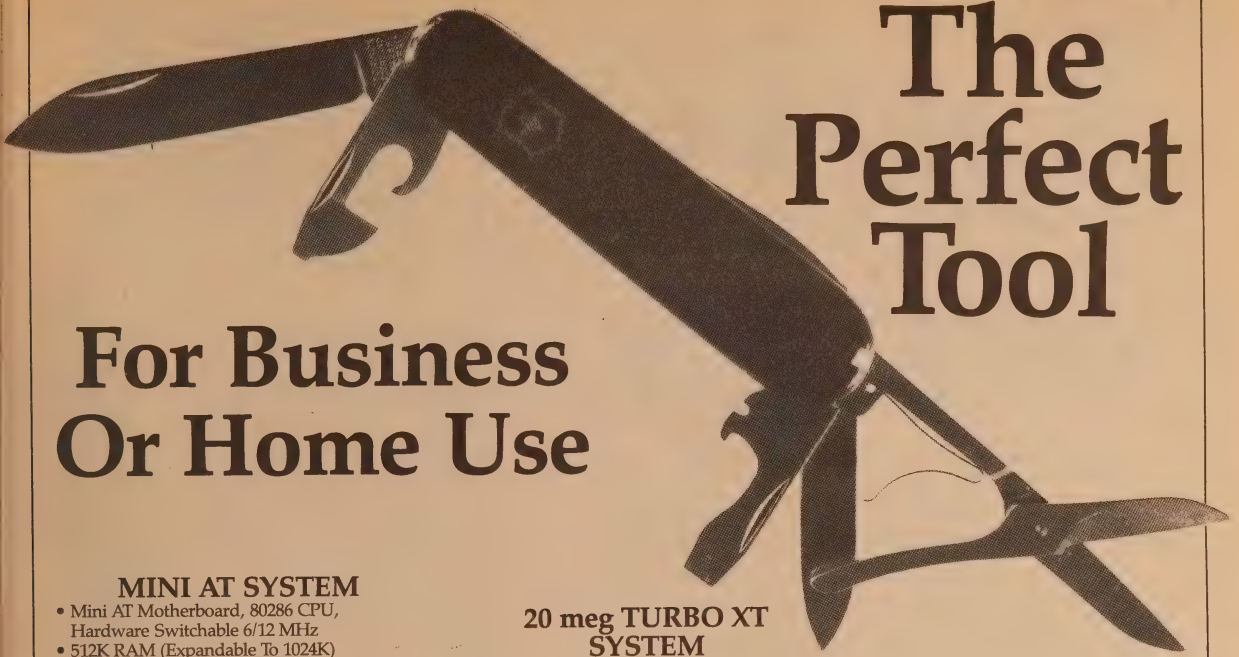
On the other hand, to provide perspective in the Macintosh performance market, we felt it appropriate to compare the TurboMax to the only other similar Macintosh-enhancement product—Levco's Prodigy 4. In fairness, the Prodigy 4 is a somewhat different (and more expensive) product. Like the TurboMax, the Prodigy 4 features the 68881 co-processor, and the 16 MHz clock speed. The Prodigy 4 differs in that it's based on the 68020 CPU (like the Macintosh II), and it's equipped with four megs of RAM memory.

To minimize the influence of the extra memory, the following tests were performed with Apple's "RAM Cache" switched off. To simulate a real-world calculation, a spreadsheet was created on Microsoft's *Excel*, and an array of 10,000 cells was programmed to calculate the square root of a constant, located in cell A1. When changing the constant in A1, a standard Macintosh managed to recalculate all the cells in 31 seconds. On the TurboMax-equipped Macintosh, the same calculation took only 11 seconds.

Speed improvements were apparent in a variety of programs, but, thanks to the 68881 co-processor, they were always the most dramatic with calculation-intensive software. For example, with the TurboMax, Ashton-Tate's *Pro3D* could re-draw a complex three-dimensional object in 17 seconds; the same object required 22 seconds on a Macintosh Plus. Surprisingly, the *Pro3D* program wouldn't run at all on the Prodigy 4, probably due to the incompatibility of the 68020 CPU.

However, a true perspective of the TurboMax's performance required a "benchmark test" that could be run on a variety of computers. For this, a sixth-order Butterworth filter (a large and complex chain of calculations) was programmed in FORTRAN, and compiled for both IBM and Macintosh computers.

An IBM PC XT (running at its standard 4.77 MHz) was able to run this program in 75 seconds, while IBM's AT ran the program in 39 seconds. A standard Macintosh Plus was able to run the same program, compiled in FORTRAN for the Macintosh, in 62 seconds. The TurboMax-equipped Macintosh finished the program in 38 seconds, and the Prodigy 4 in an amazing 7.4 seconds! (Just to keep proces-



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sing speed in context, an IBM 3084Q mainframe, running the same compiled FORTRAN program, finished in .61 seconds—about 12 times faster than the Prodigy 4!)

THE SCSI PORT

Another controversial feature of the TurboMax is its SCSI port. A jumper on the TurboMax board selects whether the the standard SCSI port or the TurboMax SCSI will be active. Only one can be used at a time. If the Mac's standard SCSI port is selected, there will be no additional speed or performance over the standard Apple Macintosh Plus SCSI.

However, the TurboMax SCSI port runs on the 16 MHz side of the circuitry, and should afford a speed increase when addressing a SCSI hard-disk drive. Unfortunately, rather than using the standard Apple DB-25 connector, MacMemory elected to use a non-standard SCSI "daisy-chain" coupler, requiring a new cable for connection—about a $50 "surprise" that's not included in the price of the TurboMax.

Without the correct cable on hand, we set the TurboMax to use the standard Macintosh Plus SCSI port, and connected a DCC Systems 30-megabyte SCSI "Easy Drive" to the Macintosh. To our surprise, the system would no longer boot from the hard drive, and when booted from an internal floppy, would not transfer, read or launch files from the drive. MacMemory is aware of the incompatibility, and is in the process of writing special SCSI software "drivers" (which require erasing and re-formatting the entire hard drive) for the ten most popular hard drives. According to a MacMemory representative, "there are so many new drives popping up on the market, we had to draw the line at ten. We think we have covered the majority of the hard drives in the field."

On the other hand, some SCSI drives work just fine. According to John Lozano, the Dataframe 20XP and 40XP are completely compatible. After the Easy Drive refused to work with the TurboMax, we tried a Zap SS-20 (20-meg SCSI) hard-disk drive from Zap Computer Supplies in Irvine, California. The Zap drive proved 100% compatible, and we used it as a reference for the rest of our testing. The bottom line is that if you already have a SCSI drive that you want to use with the TurboMax, make sure that it's compatible *before* committing to the TurboMax installation.

WHAT IT COSTS

The horsepower and features afforded by the TurboMax carry a hefty price tag. The basic TurboMax board, with the power supply, fan,16 MHz clock and two megs of RAM retails for $1,300, plus installation. The 68881 math coprocessor chip is an additional $400. Extra RAM memory modules haven't received their final pricing as yet, but will be in the region of $800 per megabyte. Based on those prices, a full-house TurboMax, with the four megs of RAM, will run $3,300.

For those wanting an internal hard-disk drive to accompany the package, MacMemory offers internal, SCSI hard drives. Though still in final testing, the 20-megabyte drive should be available with the TurboMax board for an additional $999, and the 40-megabyte drive is projected to retail for $1,999. Users requiring a high-performance, yet fully self-contained Macintosh system will find the $5200 fully-optioned 40-meg internal TurboMax hard to beat.

It should be pointed out that all of the above pricing does not include installation. However, if the TurboMax is fully outfitted with the RAM memory, coprocessor or drive desired, a one-time installation fee should cover all the hardware. The TurboMax board, the power supply, and all components supplied in the package are covered by a full one-year warranty.

ANALYSIS

The TurboMax is an expensive, high-performance product aimed at users who make their living in front of a Macintosh screen. It will be best appreciated in applications involving long calculations. Those users searching large databases, calculating large spreadsheets, and compiling programs into machine language will be able to take advantage of the speed and power afforded by the TurboMax.

To date, the TurboMax's only competition in the Macintosh performance arena is Levco's Prodigy 4, which costs about three times as much as the TurboMax. Since the Prodigy is still quirky about running *all* existing Macintosh software, as of right now, the TurboMax is the only upgrade that runs all business software on the Macintosh. (Note: this will soon change. Since the Macintosh II employs the same 68020 CPU as the Prodigy 4, future software will be completely compatible with the Prodigy 4.)

For the casual end-user, the advantages of the TurboMax are much less apparent. For the casual user, the extra memory will probably be the biggest attraction, making it possible to place the System/Finder, a powerful word processor, a spelling checker, and huge documents entirely into RAM. However, so would any memory-enhancement product (some two-meg upgrades are available for as little as $400).

Does your Macintosh need a TurboMax? Will you really benefit from the speed and performance it affords? It's all a question of how tired you are of "waiting for the wristwatch" during long calculations. □

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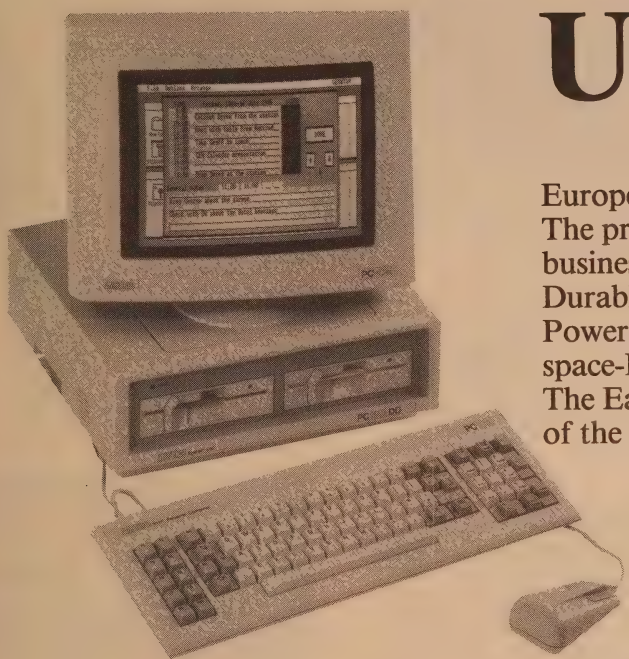

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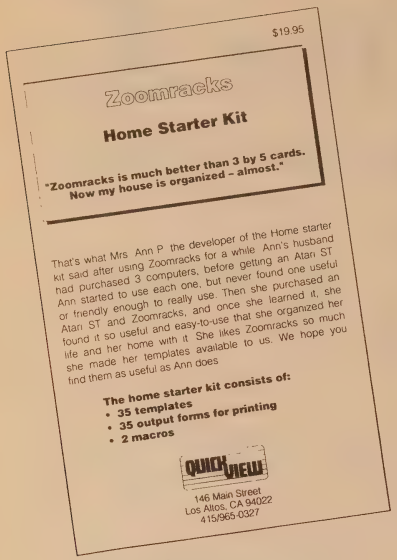
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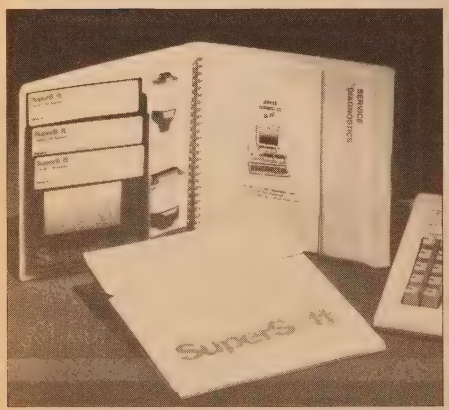

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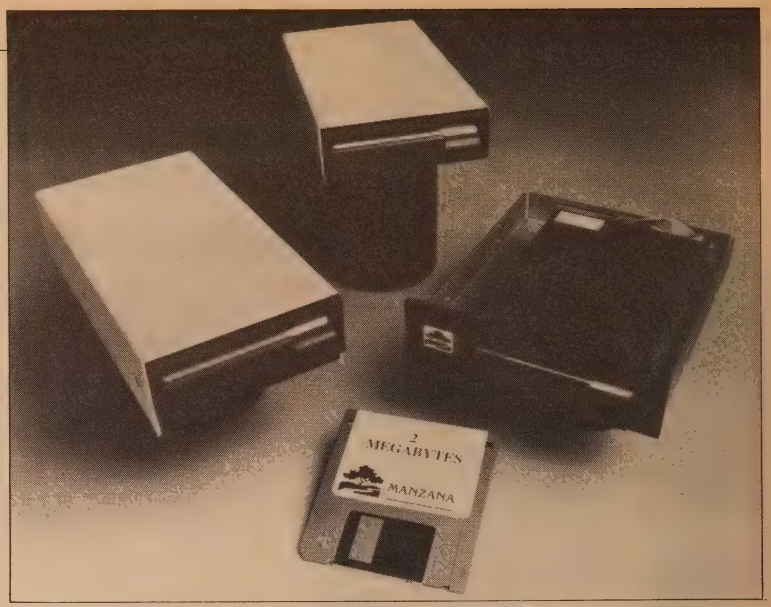

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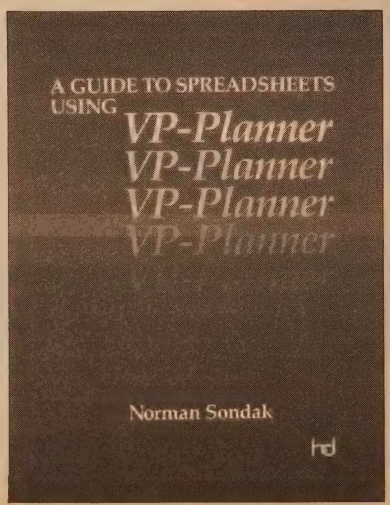

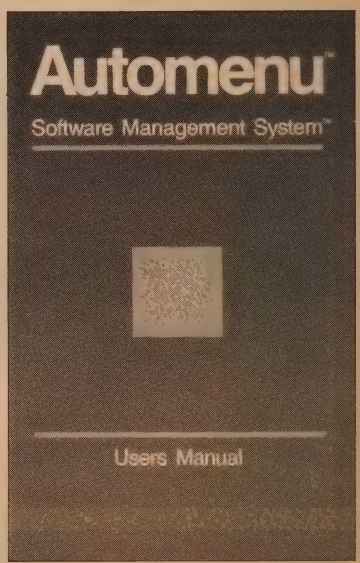

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A Little Net Music

By Bennett Falk

In early April Sun Microsystems announced a dramatic reduction in price for some models of the Sun Workstation. The Model 3/50 workstation, with monitor, 4MB memory, and network hardware, now lists for just under $4995. A complete stand-alone system from Sun has a list price of $9995 and includes a 71 MB disk, cartridge tape drive, and Sun's complete implementation of Berkeley's 4.2 UNIX.

This is a bold move. Sun's 15 MHz 68020-based computers will be price-competitive with machines like the Macintosh II and the Compaq 386. The big advantage Sun has over other high-end personal computers is a strong commitment to networked systems—these machines work well enough in isolation, but they excel as independent computing stations sharing resources over a high speed network. Every model in the Sun product line is equipped with an Ethernet interface, and Sun has produced a number of software tools to make a distributed computer network easy to use and administer.

At the heart of Sun's effort is the Network File System (NFS) which allows users throughout a computer network to share files more or less regardless of which computer the file is stored on. NFS is a fascinating product, but to understand it, we need to talk a bit about network terminology.

WHAT IS A NETWORK?

The word "network" gets bandied about pretty loosely these days. Often it signifies nothing more than a connection (of whatever kind) between two or more computers.

Though there are many kinds of computer networks, they are all basically a means of distributing some service or resource. Any network will consist of "servers" and "clients." Servers offer resources; clients consume them. Some participants in the computer network may even fill both roles. We can distinguish kinds of networks by looking at how the roles of client and server are filled.

At one extreme are the networks in which computer users take the "client" role and the network's services are delivered directly to the user. The server role may be filled by any number of things the client must interact with: a remote computer, a program, or even another user. The services provided to human clients are things users can work with: files, messages from other users, or even an interface to a program.

This form of computer network requires nothing more than a connection between serial ports on two computers. Traffic over such a connection moves slowly, traveling at speeds no greater than about 60,000 bits per second (about 6,000 characters per second), but even this far exceeds the speeds at which most users will read the information the network provides.

Slow networks based on serial communications are not easily shared: the jobs moving through the network are bulky, and ordinarily must be processed completely before the next item in the network can be processed. As one client is served, others go without.

In contrast, imagine a network in which the client role is occupied, not by a human user, but by the computer. Getting the humans out of the network changes everything. The service the network provides is less likely to be information and more likely to be some resource the client machine can manage. Disk space, perennially in demand, is a good example, as we shall see.

If the service the network provides is some hardware resource, the speed at which traffic circulates through the network becomes critical. In high speed networks, clients and servers converse at speeds ranging from one to ten million bits per second.

A fast network can still provide services to "user" clients, but this does not begin to exhaust its capacity. Communications flowing over an Ethernet connection exemplify the versatility of high speed networks.

With the Ethernet design, all the nodes on a network are connected by a single trunk line which carries all network traffic. Each host computer monitors the line constantly, but retrieves only the messages for its network address. The messages, of course, could be almost anything: a user's attempt to login from another computer on the network, a request from another computer for disk services, or part of a file being copied to or from another computer. The requests for services are processed as they are received, and requests from various sources for various services can be interspersed freely.

MAKING DISK SPACE AVAILABLE OVER A NETWORK

There are several ways of making disk space available as a network service. The UNIX 4.2 remote copy program "rcp" will let users copy files from one network node to another in more or less the same way that files are copied from one directory to another on a single computer. Of course, rcp is a tool that provides a network service directly to users. It works only for files, and it contains no mechanism for managing the disk space that a copied file occupies.

A more sophisticated service is available from utilities like "Network Disk" (ND), also from Sun. ND makes raw disk partitions available to its clients (the clients, in this case, are machines on the network). A client can be granted exclusive use of a raw disk partition on the server. The client machine works with this partition in much the same way that it works with its own logical devices: it builds a file system on the remote partition and makes this disk space available to users. A file system created in this way can be accessed as though it resided on the client machine. Other users on the network, however, have no access to the disk at all. In effect, the client has been given a hardware resource by the server.

THE NETWORK FILE SYSTEM

NFS is an almost completely painless network service that allows users and client machines to have protected access to shared files on a server. Unlike the Network Disk service, access through NFS is not limited to a single client machine. The administrator of a server can make a file system available to client machines by simply composing a list of the machines to which the file system may be exported. Any client machine on this list may have access to the public file system by using a special version of the "mount" command. Once the file system is mounted, users on various client machines may work with the file system.

To achieve this marvelous effect Sun has created a network service quite distinct from its predecessors. The rcp utility described above allows users to move files through a network; ND allows computers to manage raw disk partitions on remote servers. In contrast with both of these tools, NFS is first and foremost a service whose clients will be operating systems. The file system itself is the service, and users working with the file system will hardly be aware of what NFS is doing behind the scenes.

NFS is composed of a modified UNIX kernel, assorted library routines, and a collection of utilities. It is built around two facilities: Remote Procedure Call (RPC) is an advance in interprocess communication that allows two processes running on different machines to work together very closely. Sun's External Data Representation (XDR) provides a means of representing the various data types in a form that any machine on a network can use. Also included with the system is a database ("the Yellow Pages") to help administer the network.

Though it is put forward as a tool to span a variety of operating systems, NFS has been developed initially to work with UNIX, and this is a mixed blessing. While UNIX embodies many of the concepts that are fundamental to any shared access system, it also presents unique challenges for network projects such as NFS.

Above all, when a UNIX system crashes, any applications running on it crash as well. The problem for NFS is to minimize the impact of a crash anywhere on the network. This was handled by making the server "stateless." This means that under NFS, each client is independently responsible for finishing its work and the server need not remember anything from one client request to another. Consequently, there is nothing that needs to be remembered when the server is brought up after a crash. Because clients have minimal reliance on the server, they can survive server crashes.

Another difficult point is that UNIX was designed from the outset to be self-contained. Every UNIX system has a super-user with absolute authority, and this has constrained NFS to incorporate a number of special features to manage the multiple super-users who might have access to a file system through the network.

There are other issues as well, but on the whole the NFS product offers a practical approach to resource sharing. With the price cuts Sun has recently announced, you may well encounter NFS sooner than you might have thought possible. (Sun Microsystems, 2550 Garcia Avenue, Mountain View, CA 94043; for sales info call 800/821-4642.)

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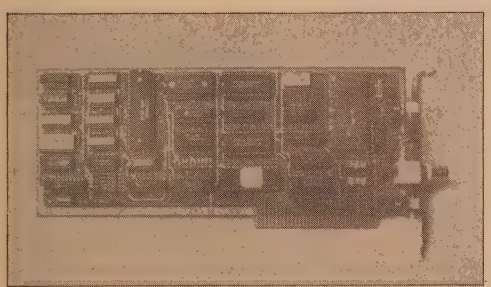

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Report From The Commodore Show

By Matthew Leeds

I love going to trade shows. I've a variety of reasons for this strange attitude. Partly I just like to shop. I've got a great love for new gadgets and gimmicks, new software and hardware.

The Commodore Show is one of my favorites. I used to be a part of producing it, and it's all Commodore products. The show has moved from the Cathedral Hill Hotel, where it used to produce crowded conditions reminiscent of Grateful Dead concert ticket lines, to Brooks Hall—a very positive step. Although the show becomes very busy at times, there is always room to move in the aisles.

As always there was an excellent roster of speakers: Jim Butterfield, the Guru of the 64; Brian Dougherty, president of Berkeley Softworks (*GEOS*); Jim Goodnow, author of the Aztec C compiler; R. J. Mical, the father of Intuition; Richard Immers, wizard of all Commodore DOS; and Louis Wallace, programmer and writer of hundreds of national articles. Compliments to the staff of the show for continuing this valuable service.

This year the show was an interesting mix of veteran vendors, new developers, discount mass liquidators, local retailers, and a few oddly out-of-place companies. I'm not sure it makes sense to have someone selling stun guns or Macintosh software at a Commodore show . . .

On to the interesting products I saw at the show. Mostly I'll cover products I had not seen at other shows. Heading the "I finally believe it exists" list was WordPerfect's booth showing the Amiga version of *WordPerfect*. Rumor has finally been put to rest. The Amiga version retains all the features of the IBM version 4.1, and adds an Intuition interface. Spelling checker, thesaurus, merge, macros, auto index/table of contents generation, columnar output, and file compatibility with the IBM version all gives the Amiga *WordPerfect* program a hefty leg up on the existing market of word processors for the Amiga. The product should be shipping about this time, for a suggested retail of $395 — well above the standard price for Amiga software. I'll be interested to see if Amiga users will accept IBM prices for software.

Inter/Active Softworks wants to change the way you see text. They've produced a program called *The Calligrapher*. It's a font design package for the Amiga with a list of features that would make a type designer turn green. It lets you design fonts in up to 16 colors, with a maximum size of 256 × 160 pixels. All the fonts conform to the Amiga text standard (except multi-color fonts, and they've applied for an IFF format registration to cover their system), and are compatible with any Amiga program that uses fonts. They also provide a software patch program to enable other programs to use multi-color fonts. The heart of the program is the font editing section. Fonts can be spun, flipped, rotated, sized, pattern filled, italicized and underlined. On-screen adjustments of kerning, spacing, width and baseline make it easy to produce professional-looking fonts. A full list of *The Calligrapher*'s features is far too long for this article, but I'll be doing a full review in a later issue.

Ronin Research & Development was showing a slick 68020/68881 board. This is a card that plugs into the 68000 socket inside the Amiga. Two versions are available: 1 7.16MHz and a 14.32MHz. The board also provides a 32-bit memory bus, and a memory board with up to eight megabytes is also available.

S. Anthony Studios showed their PostScript software tools for the Amiga. They have a variety of products that can be used to create PostScript formatted output, such as typesetting formatters, downloadable fonts, screen dumps, *Aegis Draw* plots, and a PostScript paint program.

MaxiSoft has been renamed Oxxi, Inc. They were showing a new version of *MaxiPlan*, called *MaxiPlan Plus*. They have added macros, password protection, new chart and graph options, an improved database capability, and a host of other features. They were also talking about *Encore*, their keyboard and mouse macros recorder, *ShortCut*, an abbreviations macro program, and *Wow!*, a disk cache program.

The Basement Boys were there with the latest version of *Fast Hack'Em* for the 64. The Starpoint alumni have been spinning off in various directions, creating new companies as they go. Scott Blum is now the VP of Complete Data Automation, and has promised to send me his new spelling checker for the Amiga.

Brown-Wagh was showing *TV*TEXt* for the Amiga and *Publisher 1000*. *TV*TEXt* had a very friendly user interface, and some powerful text rendering capabilities, but we will have to wait several more months for the page and wipe section. *Publisher 1000* looked great, with a professional user interface and a logical sequence for editing and printing.

Epimetheus Corp has created an innovative ROMdisk hardware package for the 64. This is a 128K bank of EPROMs, built into an EPROM programmer. It comes with all the required software to move your favorite programs onto the EPROMs. To your computer, the ROMdisk looks like a disk drive, but programs load over 30 times faster. They also offer user port extension cables, user port "Y" switches, and a hardware/software package that lets you use your 64 to control the furnace in your home.

Elias Engineering showed *Circuit Maker* for the Amiga. This is a design tool for simulating digital circuits on the computer. You are provided with a library of ICs and the ability to create custom designs as well. A test layout can be described using an array of symbols positioned on-screen. The logic can then be tested using waveform and function generators simulated by *Circuit Maker*. Simulated test equipment includes an oscilloscope and logic analyser.

Intreptec had what was my favorite new product for the 64, Sonar 64. This is an ultrasonic measuring/detection hardware/software package. It includes a sonar module, interface card, software, and manual. The sonar module is similar to that used on auto-focus Polaroid cameras. The included software offers several functions — proximity measuring, intrusion detection, and robotics. Very useful in many applications, and fun to experiment with as well.

Infinity Software announced *Galileo*, a desktop astronomy program for the Amiga. If you remember *Sky Travel* on the 64, then you've got the idea. *Galileo* looks to be a real winner, with educational as well as entertainment value. The author, Mike Smithwick, works as an astronomer and astrophysicist designing advanced space flight simulators for NASA's Ames Research Center.

Not shown at the show was Commodore's new Amiga, the A2000. Don't hold your breath waiting to buy one of these, as I've been hearing word of delays in FCC approval — shades of Genlock, LIVE!, and the Sidecar. The machine, however, looks promising. □

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Matthew Leeds is a writer/photographer specializing in high technology. He has been involved with Commodore computers since 1983. *Copyright © 1987 by Matthew Leeds. All rights reserved.*

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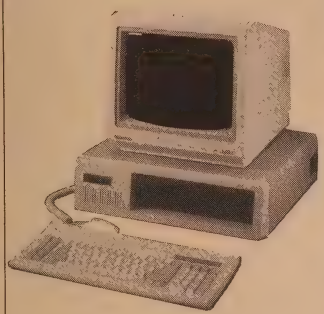

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The ST At The Faire

By Helmi Kobler

Spending 18 hours on the hot, cramped floor at San Francisco's West Coast Computer Faire can do terrible things to people. After a few hours in the midst of wall-to-wall people and ear-piercing racket, heads begin to spin, eyes glaze and ears ring. This, coupled with the fact that the city was enjoying the most gorgeous weather it's had in months, tends to make you wonder why you ever got a computer in the first place. Nonetheless, this year's Faire was an experience, and despite the sea of PC clones, spreadsheets and CAD packages pervading the floor, the ST seemed to have itself a respectable following.

In fact, my only disappointment as far as the ST was concerned came from Atari's decision not to exhibit. Instead of buying its own booth space, Atari was represented through a few local user groups and the GEnie booth—a far cry from the impressive set-ups I've seen at other shows.

With all the recent clamor over the Mega STs, laser printer and PC clone, this Faire would have been a great opportunity for Atari to wave its flag, toot its horn and generate tons of publicity. This was done at COMDEX and CES a few months back; why not in San Francisco? With a slew of other big-name companies absent this year, Atari would have been the talk of the show and the darling of thousands of show-goers. What happened to that aggressive, go-get-em Atari style this time?

Aside from this gripe, however, I found plenty to be pleased with. WordPerfect Corporation, for instance, was demonstrating an ST version of its popular *WordPerfect* software, putting to rest Jerry Pournelle's remark that there are no professional word processors available on the ST. *WordPerfect* looks like a super package (Pournelle, in fact, uses it himself) and I can hardly wait for its June release.

Among other features, it has the GEM interface, footnote and endnote handling, macros, math columns, outlining, multiple text columns, table of contents and index generation, a thesaurus, a 115,000-word spelling checker—*and* it's file compatible with *WordPerfect 4.1* and up on the IBM. Zowee! The suggested retail price for *WordPerfect* is, er, $395, but expect to see that heavily discounted to around $200 in the stores. You can reach WordPerfect at 288 W. Center Street, Orem, Utah 84057. The phone number is (801)255-5000. Tell them how smart they are to support the ST!

More exciting ST stuff was found at Antic Publishing's booth, where people lined up to get a look through Antic's StereoTek 3D glasses. You can stop thinking of Antic as only a magazine publisher (*Antic, START*); it's getting into a lot of software publishing too. In fact, Antic claims to publish the largest library of ST software around, and in looking through its catalog, I can see why. Popular software such as *Flash* and *CAD-3D* has come from Antic, but there's more on the way.

Shown at the Faire was Antic's *Cyber Studio*, an incredible CAD/Animation package made up of Tom Hudson's *CAD-3D 2.0* and Mark Kimball's *Cybermate* software. *Cyber Studio* lets you design 3D objects with all sorts of effects and then animate them at up to 60 frames a second. The package also supports Antic's StereoTek glasses, so you can view everything in true 3D. I'll talk more on these after they've been released (mid-April, says Antic) but in the meantime you can pick up any recent *Antic* or *START* magazine to get more information. Or call Antic's Customer Support department at (415) 957-0886.

Also at the Faire was Data Pacific, maker of the Magic Sac, that wonderful little cartridge that lets you run Macintosh software on your ST. Though the Magic Sac didn't draw the same crowd as it did during last year's Faire (where it was introduced), there was still a lot to get excited over. Data Pacific announced that version 4.0 of Magic Sac would be available soon—and should be out as you read this. Besides fixing a few bugs from earlier Sac versions, 4.0 supports 800K floppy disks, works with the Mac's Finder 5.3 and even runs on SM1224 color monitors.

Better yet, however, Data Pacific has plans to sell an interface box that turns a regular ST floppy into a Macintosh drive. Magic Sac owners have been haunted by the fact that the ST and Mac drives used—incompatible formats. To run Mac software, you'd either have to download it over the phone or you'd have to literally connect a Mac and ST together and transfer data through a cable. Besides being a hassle, this method ruled out the use of any copy-protected software. Now, with this neat interface, you can just scoot down to your local computer store, purchase a Macintosh package and run it right out of the box on your ST. If this interface actually works, the Magic Sac will no longer be the novelty item it is now. Data Pacific says its interface should be out by the end of April, although no price estimate is available yet. Reach the company at 609 E. Speer Blvd., Denver, CO 80203. The phone number there is (303) 733-8158.

But on to other things. Mindscape has finally released an ST version of *Balance of Power*, the classic simulation of world geopolitics. The name of the game here is geopolitical prestige. Representing either the United States or Soviet Union, your goal is to make as many friends in the world as possible, thereby increasing your nation's prestige, while avoiding a nuclear confrontation with the opposing computer superpower. This is no idle feat, and I guarantee that after a few games of *Balance of Power*, you'll have new-found respect for those poor souls on Capitol Hill and in the Kremlin.

You deal with 61 other countries, using everything from troop intervention, economic and military aid, treaties, diplomatic pressure and CIA/KGB-type underhandedness to influence them. To survive, much less win, you have to establish a balance of power with your opponent, where you come to respect each other's spheres of influence. For instance, you'd be asking for complete nuclear annihilation by sending military aid to East German insurgents. You have to be extremely delicate in most cases.

Obviously, *Balance of Power* has a lot of depth, making it a very involved and time-consuming game. Trying to play it without reading its 87-page manual is a waste of time and once you finally have a feel for it, you'll find that full games take hours to complete (if you don't blow yourself up, that is). If you have the time for *Balance of Power*, however, it can be a lot of fun. And if it gets addicting, you can also run out and buy *Balance of Power*, the book. Written by the game's author, Chris Crawford, the 300-page book goes into all the little intricacies of geopolitics and offers winning strategies for those aspiring Secretaries of State. The book is $10.95 from Microsoft Press, and the game is $49.95 from Mindscape (3444 Dundee Road, Northbrook, IL 60062 (312) 480-7667). The game works with color and monochrome monitors.

Electronic Arts has released The Software Toolworks' *Chessmaster 2000* for the ST. *Chessmaster* comes to the ST community as an already-acclaimed product. It's won the 1986 U.S. Open Personal Computer Chess Championship, and is the official computer chess game of the U.S. Chess Federation (the Federation gave *Chessmaster* a play rating of 2,018—the closest computer challenger is Hayden's *Sargon III*, with a rating of 1,850.)

The game is really sharp. Twelve levels of play are provided, from "newcomer" to "grandmaster," and just about every bell and whistle is included. The chess board can be viewed in two or three dimensions (the 3D color board is beautiful) and there's even optional voice synthesis during play (*Chessmaster* exclaims "Ooh! Ya got me!" as its pieces are captured). Moves can be entered by mouse, or through keyboard in descriptive, algebraic, and computer notation.

There's an analyze mode where Chessmaster displays the moves it's considering, giving you a "behind-the-scenes" perspective. A second disk featuring 100 classic games is also included. For beginners, there's a "teach" mode where the program displays all possible moves in a given situation, and the well written manual includes an interesting history of Chess and a tutorial written by the U.S. Chess Federation. If you're a chess fan, you'll be cheating yourself by avoiding this game. It works with color and monochrome monitors and is sold for $44.95 through Electronic Arts. Reach them at 1820 Gateway Drive, San Mateo, CA 94404. □

Helmi Kobler took his first step into the computer world in 1983 when he walked out of Macy's with an Atari 800 in his arms. Still an Atari user, he's now inseparably attached to his ST. He can be reached through MicroTimes *or e-mail <helmi> on The WELL at (415) 332-6106.*

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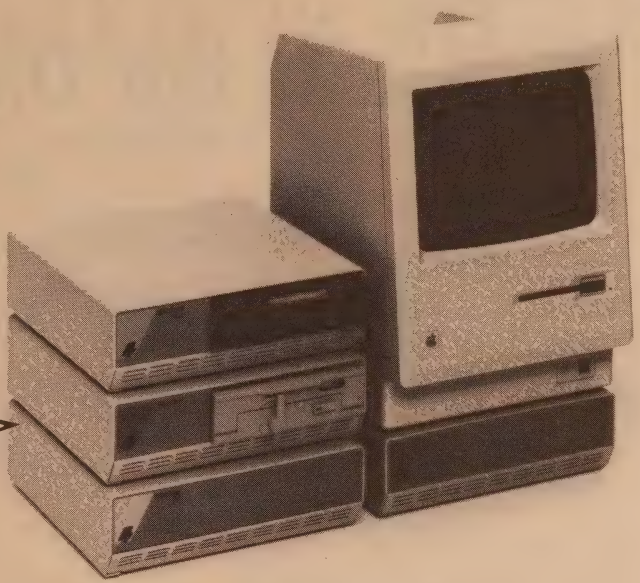

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Networks For Databasers

By Warren Sirota

Each January, it seems, pundits predict that the coming year will be the "Year of the LAN." This has happened for three years running now, and is beginning to remind most of us of the boy who cried wolf. As with the wolf-crying boy, however, one ignores the message at one's peril. LANs and other forms of networks have been slowly but steadily sneaking into the PC world, and the need for database programmers to deal with these networks is increasing. When data from diverse places can be brought together and integrated, the economic benefits may be able to better justify programming costs.

USING dBASE ON A LAN

Shared files on a LAN are stored on a device called a **file server**, which is usually an AT with a large hard disk. All of the computers have network interface cards which are connected together with cables. When a user boots up his computer, presumably something in the AUTOEXEC.BAT file will cause him to **log in** to the LAN. The person operating the PC may have to know a password in order to complete the login successfully.

In order to use the network's *dBASE*, the workstation needs to have a program called ACCESS installed on its own disk. The user gets into *dBASE* by typing the command ACCESS from the DOS prompt, followed by some parameters that tell it where to find the network *dBASE* version. If you're setting this up for someone else's use, you can put the required form of the command into a batch file for simplicity.

When the user types in the ACCESS command, several things happen. First, the multi-user *dBASE III+* program is loaded into the memory of the user's computer. This differs from loading single-user *dBASE* into memory from your own hard disk only in that it is slower. The bytes are coming into memory over a cable in little protocol packets to protect them, so that you don't end up with a program in your memory that consists of a cross between your *dBASE* program and the *1-2-3* that someone else was trying to load (the programmer's equivalent of *The Fly*). It takes time to stuff a big program like *dBASE* into protocol packets, send it over relatively slow cables which have other traffic on them, and unpack it carefully into your computer's memory. Hence, initial load time on a *dBASE* multi-user application is likely to be slower than if it were loaded directly from the PC's own hard disk.

Copyright ©1987 by Warren Sirota. All rights reserved. *Warren Sirota is a database consultant with experience in a wide range of languages. He also composes and programs computer music. He lives in Oakland and can be reached at (415) 482-3979.*

Figure 1: The problem with simultaneous updates.

(a) Original Record in Database:

QUANTITY	UNIT COST
10	$9.99

(b) What *you* think you changed it to:

QUANTITY	UNIT COST
100	$9.99

(c) What *she* thinks she changed it to:

QUANTITY	UNIT COST
10	$9.57

LOCKING

The file server looks like an extra hard disk to the user. In other words, a PC with floppy drive A: and hard drive C: would suddenly appear to have another drive, drive D:. Once the *dBASE* ACCESS program is loaded into the computer's memory, the user can issue any commands he or she wants against the common data. To access a file called ORDERS on the file server, you would simply type in USE D:ORDERS, just as if the file were on a second hard disk on your own computer. Suppose, though, that there was someone else on the LAN who wanted to use the same file at the same time. What would be the consequences?

If both of you were only trying to read or report from the same file, there is no logical reason to deny either of you access to the data. However, if both of you were trying to change the same record at the same time, serious problems could result. Figure 1 shows what would happen if you and Ms. X over in accounting were to try and update the same record simultaneously. If you both asked to see the record before updating, you would each be given a copy of the data shown in (a). Suppose that you changed the data to that shown in (b) and saved it, and then Ms. X changed the data to (c) and saved it. The later changes would overwrite the earlier, and the company would ship out 10 units instead of100. The situation is the opposite of a race—whoever finishes first loses.

To prevent this type of occurrence, *dBASE* must prevent two people from having simultaneous edit access to one record. If Ms. X gets the record to edit first, then you must wait until she is done editing before you get to edit it. To be really picky about the issue, you shouldn't even get to examine the existing version of the record while Ms. X is editing it, because the record is really in an indeterminate state (it could be changed) while you might be fooled into thinking that the data in the record is accurate and current. For instance, while Ms. X is busy changing the price of widgets, you might be giving an erroneous quote to a customer based on the old price.

There are several mechanisms in place to control simultaneous access and updating, all controllable through your programs. The default usage of a *dBASE* database is EXCLUSIVE. When you, sitting at a workstation, issue the command USE ORDERS, the database will be allocated for your use and your use alone. If Ms. X tries to issue the same command from a different workstation, she will be denied access. This level of control is called **file locking.** All network users except the current user of the file are prohibited from even reading it while you have control, even people who try to access it from DOS instead of *dBASE*. When *dBASE* gives you control, it also makes an operating system call to MS-DOS 3.1 (or 3.2) which locks the file at the operating system level.

There is a problem with file locking, however. It would be very difficult to have four workers at different workstations adding orders to the same file, for instance. Each one would have to wait for the other updates to finish before getting access to the database. In this case, the workers aren't even trying to edit existing records.

There needs to be a way to allow multiple simultaneous access to a file, while still preserving safety from conflicting updates, and there is. It is called **record locking.** With record locking, no one else can change the record that you are editing, but people can change or add other records in the same file.

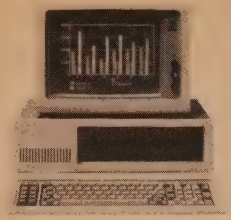
A program that is changing a record on a multi-user system typically needs to do several things:

1. SET EXCLUSIVE OFF and then USE **<database name>**. This opens the database for shared access.

2. Before editing a record, the program needs to call the RLOCK() function. This will lock the record if nobody else has it locked, and return a logical value of .T. if the lock was successful. Normally, you put the RLOCK() command into a loop that keeps trying until it can get a lock on the record. Putting a limit on the number of iterations in the loop is a good idea, with a "Please try again later" type of message to the user if the lock fails repeatedly.

3. When you're done editing and saving the record, release the lock by using the RLOCK() function again.

Those are the basic principles of using record locking. There are some operations that require that you get a file lock on a database, however. These operations are generally those that have a global scope; i.e., PACK, REINDEX, REPLACE ALL xxx WITH yyy, etc. For these, you can either use the FLOCK() function which works analogously to RLOCK(), or you can simply USE the file without the SET EXCLUSIVE OFF. □



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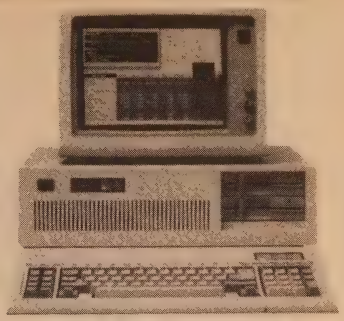

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Real Science On CP/M Computers

By Robert D. Athey Jr.

This is the first of a two-part series on how those "little" and "unsophisticated" CP/M computers are being used for scientific applications. While these machines are probably used mostly for writing these days, some of us are science writers who need the computer to do some calculations for the benefit of our readers—the science community who want to see the results of experiments, with interpretation of the data to insure that the results are meaningful. The first column will deal with how to assess the relative meaningfulness of a particular set of data, and how easy it is to do the calculations on the standard spreadsheet. The second column will go into the graphics the scientists like to see, and how to generate these graphics on a CP/M machine. It will also list some commercially available engineering programs for civil and chemical engineering applications.

SCIENTIFIC CALCULATIONS IN CP/M

Most scientific calculations are not difficult. The calculation I've done most over the past 25 years has been the simple determination of total solids (or non-volatile, as we say in the paint trade) content—usually a situation in which we have solutions or latex or paint, consisting of a certain amount of fluid carrying a certain amount of solid. To make up a recipe (more frequently called a "formulation"), we are usually concerned with how much of the solid goes into the mixture. The supplier will usually tell us what the range should be (48 to 50% solids), but doesn't tell us exact quantities. Usually the only penalty for putting in too much solid is that the cost is too high or the viscosity isn't right (too much like peanut butter instead of honey), but some recipes will boil or even explode if you put too much of an ingredient in. As you might expect, I have a spreadsheet template for calculation of solids content, an example of which is shown in Figure 1. (I call the file where the template is kept SOLIDS.PCT for easy reminder. Whenever I use it, I make the spread sheet program print to a new file for editing and printing with *VDO.COM*, the little word processor I keep on the spreadsheet data disks. Then, I can exit the spreadsheet without saving the data, and keep the template unfilled).

In situations where you have several determinations of some number (like the total solids percentage), most scientific publications will need a measure of the reliability of your average, and most of them don't want all your raw data for reasons of space. The statisticians have agreed on something they call the "standard deviation" for estimating the precision of a collection of measurements that have been averaged. The idea is that since no measurement will reflect the exact "true" value, several tries are made and the results averaged. (Multiple measurements don't agree because lots of little errors affect the final result, no matter how well you do the work. I've often told the people I've trained in lab manipulations that I don't expect exact duplications of measurements, and indeed find them suspect; I expect to see scatter in data, and therefore want to see several tries and an average all reported.)

Once you have your test results, it's time to do some manipulations of the numbers to "estimate" how close the average is to the "true" value. The model used by the theoreticians is the "Bell" or "Gaussian" curve; the data reporting is done as the average, plus or minus the "standard deviation" we mentioned above. For a "quick and dirty" comparison of two sets of results, if their averages lie within one standard deviation of each other, they are the same.

The statisticians' theory says that the true value will be within the range of one standard deviation 2/3 of the time, within two s.d. about 90% and within three s.d. 99% of the time. The template for standard deviation calculation is shown in Figure 2. We store the template in a file called STND-DEV.PC, and (again) print the results to a renamed new ASCII file for later use.

This template is expandable or contractable, in the current form, by simply adding or deleting lines in the midst of the X and Delta X Squared columns; all the calculations adjust themselves. Do remember to copy the formula for the second column into any new lines generated. This will work for up to about forty data items, in my experience. There are some public domain versions of standard deviation calculators, but they do not always agree among themselves, as some statisticians use a slightly different formula for the calculation. I choose the one that maximizes the size of the s.d.

Another fault of the s.d. calculation routines is that the data are lost after the calculation, and I want mine to be retained in case I made an input error, or want to make some other sort of change.

SL-MICRO REVISITED

For more sophisticated statistical data treatment, you can write your own programs, rather than using the spreadsheet. While there are several such programs in the public domain, I've tested some of them and found them wanting, so be careful.

About two years ago, I ran across a program called *SL-MICRO* that met and surpassed all my expectations for CP/M statistical programs. It is a modular collection of programs that run a massive data matrix—up to 3024 numbers in a rectangular array. It has modules that do Analysis of Variance (automatically checking linear and cross terms), Regressions, Correlation Matrices, and other goodies for the statistically sophisticated. The disk and documentation are available from Questionaire Service Co. (P. O. Box 778, Lansing, MI 48823, 517/641-4428). Alice and Ray Kalush wrote the package for use by social

FIGURE 1

TOTAL SOLIDS CONTENT DETERMINATION

SAMPLE			
WEIGHTS			
Pan + wet sample			
Pan empty			
wet sample	c7 = c4 − c5	d7 = d4 − d5	e7 = e4 − e5
Pan + dry sample			
Pan empty	c5	d5	e5
dry sample	c11 = c9 − c5	d11 = d9 − d5	e11 = e9 − e5
% solids	c13 = 100*(c11/c7)	d13 = 100*(d11/d7)	e13 = 100*(e11/e7)
Average % solids	c15 = avg(c13:e13)		

Bob Athey has over 20 years of experience working on computers and runs his own company on chemical consulting and contract research. He can be reached through MicroTimes or at (415) 526-3541.

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FIGURE 2

Standard Deviation Calculation

	X Values	Delta X Squared
		d3=(c3−c12^2
		d4=(c4−c12^2
		d5=(c5−c12^2
		d6=(c6−c12^2
		d7=(c7−c12^2
		d8=(c8−c12^2
Sum X Values	c10=sum(c3:c8)	d10=sum(d3:d8)
No. X Values	c11=count(c3:c8)	
Average X	c12=c10/c11	
Variance	c13=((c10^2)−d10)/(c11−1)	
Std. Dev.	c14=sqrt(c13)	

scientists, and were surprised that "hard science" uses were possible when I reviewed it for *MicroTimes* some time ago. They provide support by phone, but it pays to know statistics well enough not to be wasting money on the phone bill when you should be reading the manual.

SL-MICRO is easy to use. You make up your data set into an ASCII file of a rectangular array of rows and columns. Each row can be one experiment, and each column is either a control parameter or a measured result. My technique for using *SL-MICRO* has developed over the past two years into a search for the best mathematical model for a process I'm studying by doing several runs of the data through the program. You control each run of the program with a pre-written list of commands in a special ASCII file made up according to the Kalush format guidelines. The program requires you to give it the name of the file with the commands, and then it crunches away reading the command file a line at a time—performing that command, reading the next, and going on through making up a new file called SLM.PRN which contains the results. You can print the results by using *VDO* or *NEWSWEEP* (I prefer *VDO* in case I want to edit).

TIPS ON USING SL-MICRO:

1. Use a spreadsheet to make up the data files, so formatting is made easy (x values always in spaces 4 to 10 in a column, for instance). Do remember to turn off the calculation mode of the spreadsheet to make input faster.
2. Print the data spreadsheet to file (that makes it ASCII).
3. Use *VDO* to make up the command file.
4. Run the Analysis of Variance (ANOVA) mode of *SL-MICRO* as the first trial, so you can choose the important variables for the Regression model equations. I was amazed to find that a model we'd been happy with in two paint journal publications was improved upon by inclusion of cross terms by *SL-MICRO*.

Next month's column will deal with doing scientific graphics on the "little" 64K CP/M computers. Some of that is a simple "draw it to see if it's a straight line" sort of thing. However, more complex graphics, such as contour plots, can be done.

AND NOW, A SLIGHT DIGRESSION...

MicroPro has announced that it will indeed support the CP/M *WordStar* and *NewWord* users with an updated version of *WordStar 4*, slated for beta testing in August or so. I look forward to that.

In past columns, I have extolled the user groups, noting that they're the chief source of support for CP/M users at this point. Machine-specific CP/M user groups are on the wane, but alternatives are springing up. I've already mentioned the merger of several CP/M groups in the Santa Cruz area into CP/MUSC, and today's mail tells me of the merger of KUG (the KUGRAM people) with the Apricot and the Adam users to form the W/PUG (word processors' users group). The boards of directors of BAMDUA (Morrow Design Users in Berkeley) and BAKUP (Bay Area Kaypro Users and Programmers) have initiated discussions on a possible merger. My feeling is that this is probably a good thing, since user groups are invaluable Mutual Aid Societies and social milieus, and the bigger the group, the more resources are available.

We'll be speaking at the May meeting of the East Bay FOG, and look forward to meeting some of you there. □

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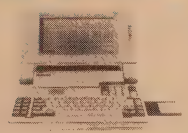

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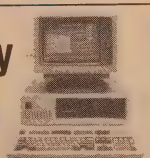

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Freedom Of Information Vs. National Security

The possibility that your every online keystroke could be monitored and reported to the NSA is not fantasy.

By Brock N. Meeks

At the very least, we've lost the the first major battle in the information access war. Let me assure you, 1984 is alive and well in 1987. Consider the following:

• In September 1984, the President signed the National Security Decision Directive (NSDD) 145, known as the "National Policy on Telecommunications and Automated Systems Security." The actual document is classified, but according to Ken Allen, senior vice president for governmental relations for the Information Industry Association (IIA), "An official expurgated version suggests the government wants to expand its control of information that it considers 'sensitive.'"

• October 29, 1986, former National Security Advisor Adm. John Poindexter quietly signed a directive giving NSDD 145 an all-encompassing security blanket for smothering information access. Poindexter's directive created a new security classification called "sensitive, but unclassified information." The definition of "sensitive, but unclassified information" covers information on "human, financial, industrial, agricultural, technological, and law enforcement" matters.

• On November 11, 1986, the quiet action of Poindexter and the preceding 1984 directive were unleashed on the general public by a Department of Defense official during an IIA-sponsored conference. Diane Fountaine, head of the Pentagon's information systems directorate, told the conference that the Administration was studying ways to censor public data bases—data bases that included only unclassified information. Further, she stated that the Administration was interested in finding ways of restricting access to certain public data bases by requiring proof of identity. She also noted that the government wanted to enlist the cooperation of the data base providers by having them monitor all online sessions and report any "suspicious behavior."

"I don't believe the issue is whether or not we're going to protect information," said Fountaine at the time. "The issue is what information are we going to protect, both within the federal government and within the industry." IIA president Paul Zurkowski says, "At that point, jaws were dropping all over the place."

Jerry J. Berman, chief legislative counsel for the American Civil Liberties Union (ACLU) said during the same meeting that if this expansion of information protection into new areas was not checked, "our free society is in serious trouble."

Brock Meeks is a San Diego-based freelance writer. He's keeping an eye on the keyboard and looking over his shoulder.

ONLINE GOLD MINE

Online data bases are a potential gold mine for foreign agents, and the administration wants to halt the "export" of technical information via computerized access—even if you can get the same information from your local library. When someone accesses a computer data base, nobody can tell whether that person is friend or foe, and that worries those charged with protecting our national security.

According to a source in the Commerce Department, this growing concern led the Reagan administration to compile a data base "hit list." The hit list consists primarily of data bases carrying technical information.

The concerns of the administration are "confirmed" by two documents: a 1985 white paper report issued by the Department of Defense (DoD), and a 1986 secret Air Force study written by an ad hoc committee under the direction of Colonel Mark Anway.

The September 1985 white paper report, "Soviet Acquisition of Militarily Significant Western Technology: An Update" reinforces the "mosaic theory" of information gathering—namely that distributed information, when compiled from several different sources, can create a single classified document. Page 17 of the report states that information, "taken in the aggregate, may reveal sensitive information concerning US strategic capabilities and vulnerabilities."

According to a spokesman for the Pentagon, the secret Air Force study identifies foreign data base access as a significant national defense concern. More specifically, the report identifies the threat of online access from Soviet Bloc countries. (At the present time, online access by Soviet Bloc countries violates no laws.)

The Administration's case for the mosaic theory is not without precedent. *The Progressive* magazine, in 1979, published its now-famous article on how to make a hydrogen bomb; all the information in the article came from publicly available sources. (Subsequently, the government clamped down on the presenting of scientific papers at technical meetings, papers that ultimately would end up in the public domain, and in an online data base.)

However, the government has overstepped its boundaries in issuing the "Poindexter Directive." Industry officials are concerned that access to information held on any online system, from CompuServe to The WELL, could be restricted in one way or another.

INFORMATION POWER PLAY

"We recognize that the government has a legitimate concern regarding national security," says IIA's Allen. "But we think it's dangerous for the government to censor or restrict the flow of information." Allen further notes that if the government succeeds in its quest to control unclassified information, "it will stifle one of the fastest growing sectors of the US economy. But the biggest losers are the citizens of the US, because they would be denied access to the information they need."

The Reagan administration, however, is already taking steps to deny foreign nationals access to high technology data. In 1986 the Pentagon ruled that visiting Soviet scientists should not be allowed access to supercomputers in this country. In a Washington *Post* article, Stephen Bryen, deputy undersecretary of defense for trade security policy, said, "The presumption is that [access to a] supercomputer is the same is as if you exported the supercomputer. Any computer that can't be exported, they shouldn't have access to."

Bryen later argued that foreign access to data bases is the same as exporting the power of that computer without an export license. "What you have to do is make access to data bases a licensable action," he told the *Post*.

The concern doesn't stop at the Soviet Bloc: American researchers and companies are denied subscription to certain technical documents. The sole criterion for this blacklisting is their interaction with foreign government nationals. This can best be demonstrated by examining the "no-no list" issued by NASA's Scientific and Technical Information Facility.

In a September 29, 1986 memo from the Technology Utilization Office, (TU), an official "no-no list" forbids distribution of *NASA Tech Briefs* and Technical Support Packages to several different companies because "the organizations cater to information requests from both the national and international arena." Among those listed are Dr. Michael Radner of Northwestern University (he is blacklisted for contacts to hi-tech Japanese firms) and Berkeley-based Information On Demand (because they distribute technical data worldwide).

BEYOND POLICY

Late last year major information providers (IP), such as Dialog and Mead Data Central, were paid visits by agents of the Central Intelligence Agency

continued on page 167

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and the Federal Bureau of Investigation. The agents tried to get a commitment from these IPs to voluntarily censor some of their technical data bases.

"Until you have received a cordial visit by representatives of the FBI, the CIA and the Department of Defense," says Jack Simpson, the president of Mead Data Central, "you can't appreciate the true extent of this issue."

To counter such pressure tactics, Congress is beginning to apply its own brand of pressure: legislation.

Early this year US Representative Jack Brooks, (D-Texas) introduced HR 145, the Computer Security Act of 1987. The bill calls for the transfer of authority of nondefense computer security programs form the NSA to the National Bureau of Standards (NBS). The bill, in effect, distances the DoD from unclassified data bases, thereby making it much more difficult for the DoD to attach the "sensitive, but unclassified" tag to publicly available information.

The bill faces stiff opposition from the Pentagon. Critics of the bill argue that the NSA is better able to handle the task of computer security, simply by virtue of the fact that they've had more experience in security matters than the civilian-run NBS.

YOUR LIBRARY PASSPORT, PLEASE

The shadow of Orwell's 1984 is all too real. The possibility that your every online keystroke could be monitored and reported to the NSA is not fantasy.

Donald Latham, assistant secretary of defense for communications, command, control and intelligence, told the *Post*, "I'm very concerned about what people are doing [when online]—not just the Soviets. If that means putting a monitor on Nexis-type systems, [run by Mead Data Central], then I'm for it."

Note that he's talking about private data bases, and unclassified data.

Allen hints that Uncle Sam may force IPs into a type of self-censorship through the use of speeches and other directives. "That would be the worst of all possible worlds," he says. "Who knows where it could end? One day we might be required to have a passport to enter a public library."

EPILOGUE

On February 16, 1987, Mead Data Central voluntarily purged the National Technical Institute Service (NTIS) file from its system. (NTIS remains available through other IPs, such as Dialog.)

Simpson, in testimony before the House Government Operations subcommittee, explained the decision to remove the file as a combination of "economic considerations [and to] remove potentially harmful information that might have been misclassified over time by the Department of Defense, and to sharpen the point that all remaining information delivered by MDC is clearly unclassified and publicly available.

"This may have removed MDC from concern under NSDD 145. But what about other providers of NTIS?"

Good question. We all know what Mr. Orwell's response would be. □

UPDATE

At press time the White House has calmed some of the controversy surrounding NSDD-145 by rescinding the directive signed on October 29, 1986 by former NSC advisor John Poindexter.

Rep. Jack Brooks (D-Texas), chairman of Committee on Government Operations, read into testimony before his Committee, a letter from National Security Advisor Frank Carlucci, which officially carried the rescinding order. "While the issue of information classification and usage is not fully resolved, the letter rescinding the directive is a major step in the right direction," said Paul G. Zurkowski, president of the Information Industry Association (IIA).

In addition to the Carlucci letter, a letter from White House Chief of Staff Howard Baker said that the policy outlined in NSDD-145 would be reviewed, but remain in effect until further notice.

"Clearly the whole problem of information classification is not over by a long shot," said David Payton, director of government relations for IIA. "All that was rescinded was a piece of paper with a definition on it. The underlying policy in NSDD-145 still stands. So we're back to where we were a couple of years ago: the definition of 'sensitive but unclassified' is in the presidential directive, but nobody knows what it means."

The White House gave no time frame for the review process to be completed.

—Brock Meeks

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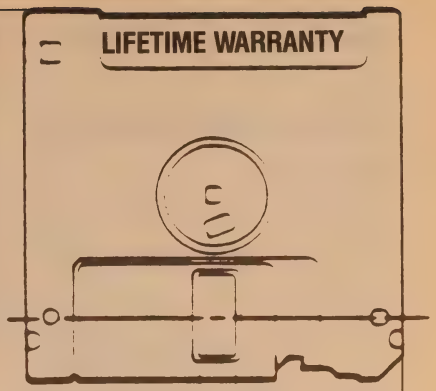

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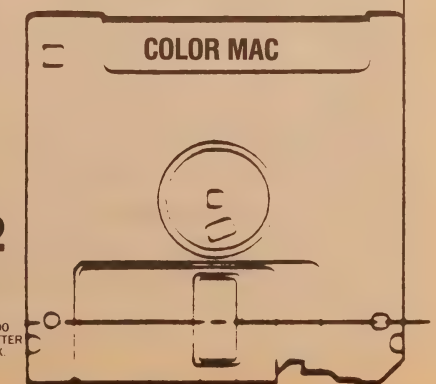

TELECOMMUNICATIONS

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Reviewed by: *Ari Davidow*

The last time I had a telecommunications program that I liked, it was using an ancient version of XMODEM on a CompuPro. When I bought my PC clone, I picked up a copy of *PC-Talk*. I liked it, but whenever I tried running it in 8-bit mode, I exchanged ASCII for Greek (aka the extended MS-DOS character set). A friend loaned me an old copy of *CrossTalk*, which was easy enough to use, but didn't support XMODEM. Next I bought a copy of Mite, but compared to *CrossTalk*, *Mite* is a real pain. So I bought the the new *CrossTalk* clone, *Mirror*. *Mirror* had bugs of its own, and left me distinctly uneasy, so I bought a current copy of *CrossTalk*. Yuk. Lots of errors. Truth is, *CrossTalk* doesn't *want* to support anything but its own protocol. So a year after I bought my PC, I'm limping along using *CrossTalk* when I want to discuss something on a bulletin board and *Mite* when I want to upload or download files.

Enter my friend Dick. Now Dick is the kind of person who has to do everything Bigger, Newer, and Faster. He always has some new program that can do something no one should really ever want to do, and do it faster or bigger than the last version of the same program. So when he showed up with a telecommunications program called *ProComm*, I was, to put it mildly, dubious. And, true to Dick's taste, it makes some impressive zips as it comes up on the screen, and lets you change the screen colors all over the place.

However, as I found out when I took it home, it's a very useful program. It works similarly to *PC-Talk*, with simple mnemonic codes to access the dialing directory (which is also quite easy to set up). It can transmit and receive data using XMODEM, YMODEM, Kermit and several other protocols. One, called Telelink, is the fastest and most accurate protocol I've ever seen. *ProComm* can transmit or receive many files at once, and the program figures out just about everything for me. When I want to download a bunch of files, I press the PgDn key and tell *ProComm* what protocol to use. (Uploading files, logically enough, is PgUp.) *ProComm* then figures out the file names, whether or not to use CRC error checking, how long the file is, and what that means in terms of real time. Nirvana.

ProComm supports a vast array of terminal emulations. It has an easy-to-use "log" function, and includes an online help screen that lists all the commands whenever you need them. You can create macros to automate logging onto bulletin boards or online services. You can skip out for a second and use DOS commands. You can edit files and then send them. You can do just about everything that the expensive programs promise, only in the case of *ProComm*, everything works.

Best of all, *ProComm* is shareware. Copies are available on bulletin boards and at PC user groups everywhere. And don't forget to send in your registration fee—anybody who creates a program this good deserves to get paid for it.

There is, alas, one other cost associated with *ProComm*. Now that I have a comfortable, working telecommunications program, my bill on The WELL and BIX is reaching unaffordable proportions. Sigh. At least I can keep track of it with *ProComm's* time log. (Datastorm Technologies, P.O. Box 1471, Columbia, MO 65205, 314/449-7012.)

HARDWARE & PERIPHERALS

ITT XTRA/286 ATW Computer

By: *ITT Information Systems*
Price: *Model I-$2,499 (640 K RAM, 1.2 BM floppy disk drive, multi-mode graphics capabilities); Model II-$4,299 (640 K RAM, 1.2 MB floppy disk drive, multi-mode graphics capabilities, 30 MB hard disk drive)*
Reviewed by: *Patricia Lesser*

As dyed-in-the-wool clone-XT users, we doubted whether any computer system could change our work habits or system preference. We had become used to a clock speed of around 4 MHz for our computer, and had acclimated ourselves to the somewhat sluggish, but still acceptable, manner in which most programs operated within its environs.

We can now blame the ITT XTRA 286/ATW (Advanced Technology Workstation) for callously and permanently ruining our loyalty for the XT and its varietals. And, due to the XTRA's superb performance, we can see no reason for ever needing a 80386-based machine. This computer has met all of our system needs. We can also state, categorically, that the 286 ATW should meet any user's requirements, whether in a single- or multi-user environment.

First, let's get the basics out of the way. The XTRA/286 ATW is an impressively sized and handsome machine. Granted, the box is rather large, but the smoothly rounded corners of the sand and cream colored base unit blend with almost any office decor. There's a lock at the front of the base unit that not only secures the computer's internals from being manipulated without authorization, but also locks the keyboard from curious fingers if you happen to be away from an activated machine for a few mintues. When locked, data entry from the keyboard is prohibited.

The unit is "stock" with a multi-mode Enhanced Graphics Adapter (EGA). A nice feature about ITT's EGA is the fact that the board is compatible with all of the major graphics modes. This is accomplished via four DIP switches located on the board, which can be accessed by the user after installation. With the use of a small, flat blade screwdriver, the adapter's settings can be re-set through the system unit's back panel for the like of CGA, MDA, EGA and Hercules emulation. The switches can also be set so that you can run both a primary and secondary adapter.

The 286 ATW also has, as standard, one serial and one parallel port and eight expansion slots. Two of these slots are 8-bit, providing for PC board compatibility, and the other six are 16-bit slots, for AT board compatibility. Three of these eight slots are half-height slots. The number of slots is admirable, especially as other clones don't offer this many. We required all of the slots, as we had to add an asynchronous card, a Datacopy scanner interface card, an additional parallel port, a mouse interface card and a 1200 baud internal modem. And, should you be as heavily involved in desktop publishing as we are, attachments to two different printers (i.e., a dot matrix and a laser printer), scanners and an I/O device become permanent attachments to your unit.

The computer's keyboard is a true delight to use. The firm response and lack of sponginess of each key when pressed is a definite plus. The audio as well as tactile feedback is excellent without being the least bit annoying. The 286 ATW's function keys are located on the left side of the keyboard in their familiar position, not balanced on top of the numeric keys as in some clone machines.

The 30 MB hard disk drive is an editor's answer to the question of "how to manage all of those files...." For example, the software we currently run on a continual basis for *PC Publishing* includes the following programs: *Diagraph*, *DRI GEM*, *ForComment*, *Harvard Professional Publisher*, *Microsoft Windows*, *Microsoft Word*, *OfficeWriter 5.0*, *PC Paintbrush Plus*, *RapidFile*, *Ventura Publisher*, and *Word Finder*. There goes 15 MB of disk storage. We also have a variety of subdirectories established for differing purposes, such as clip art storage, telecommunication with associate and contributing editors, files for differing issues, databases of vendor, subscriber, and other contacts. That wipes out another 8 MB of data. With a 20 MB drive, you're looking at a storage capability that is very nearly exhausted. Should one then need image scanning and/or optical character recognition, the remaining 2 MB or so is totally inadequate to address the additional storage needs. Some scanned files can require as much as 1½ MB each of storage.

But no such problem exists with the ITT XTRA/286 ATW—we do have the Datacopy JetReader attached and, even with the aforementioned storage occupied, still have ample room for manipulating several .IMG or .PCX files. There's even remaining storage space available for new programs that require editorial examination without deleting other important subdirectories from the disk. Access is exceedingly fast, averaging a blazing 40 milliseconds.

When the 2286 ATW is powered up, the unit goes immediately into a rapid self test that examines each of the devices located on the system's motherboard. More than 20 tests are administered, examining the port registers, the real-time clock, video boards and the floppy disk controller. Any errors are either displayed on the monitor screen or via a series of beeps. There is also ROM-based diagnostic software that allows you to check your system board, memory, the floppy disk drive(s), the keyboard, video display, and the hard disk drive. This is almost akin to having an entire technical service department at your disposal whenever you need to "check out" your computer.

There is also an asynchronous communications program included with the 286 ATW's software, which sends and receives files, emulates a terminal, provides easy access to communication parameters, supports XMODEM for error-free transfers, and allows for the storage and retrieval of communication parameter sets as well as sending data to the printer. Additionally, the system comes complete with MS-DOS 3.1, Revision C, by Microsoft, and the GWBASIC programming language.

In conclusion, we feel that the ITT EXTRA/286 ATW provides an excellent environment for productivity. The unit's design, quiet operation, expandability, sortage capabilities, bundled hardware and software, and speed of operation make this computer a delight to own and operate. ITT is to be highly commended for the introduction of this machine into the MS-DOS environment.

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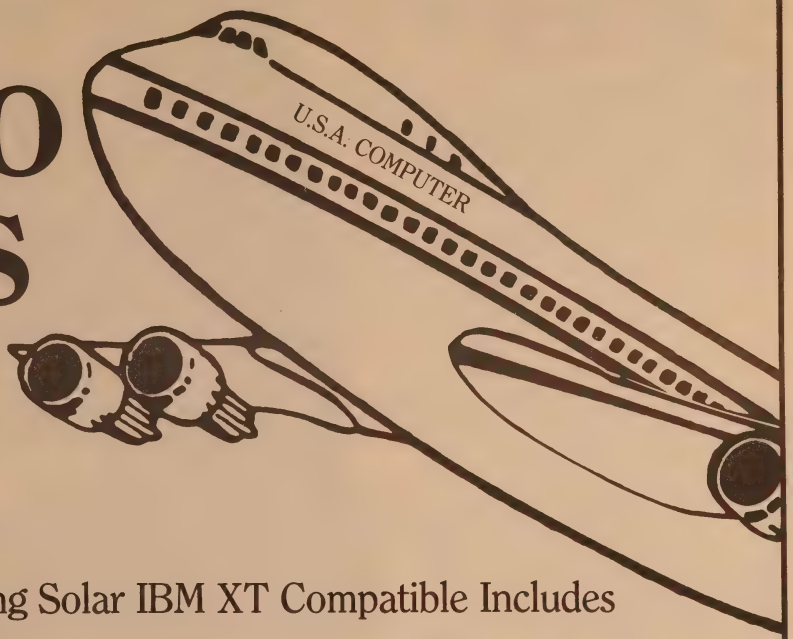

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EDUCATIONAL SOFTWARE

SCIENCE TOOLKIT: Master Module

By: *Scott Shumway and Lauren Elliot*
Published By: *Brøderbund (1985)*
For: *Apple II series (64K)*
List Price: *$70 (special school edition $90)*
Reviewed by: *Mike Markowitz*

An amazing amount of high technology can be crammed into small, cheap packages if you are going to make *a lot* of them. Especially in Taiwan. Science Toolkit is a case in point.

The *Science Toolkit Master Module* is a black box the size and weight of a cigarette pack. It plugs into the Apple's game port with a male DB-9 connector on a 32-inch cable. It has four inputs: two for analog signals and two for digital signals. (All are standard RCA-type phono jacks.)

To provide the analog input you get two wonderfully simple scientific instruments with no moving parts. The "temperature probe" is a thermistor — a device that varies its electrical resistance in response to temperature changes. The "light probe" is a cadmium sulfide photocell (similar to a photographer's light meter). The temperature probe is accurate to a tenth of a degree Fahrenheit (the Celsius scale is also always displayed). The light probe measures intensities ranging from zero to 500 footcandles (no metric equivalent is displayed however).

The accompanying software provides colorful graphic displays for the output of these instruments. It can also use the computer's internal crystal oscillator to provide a stopwatch or "timer" accurate to .01 second. You can start and stop the timer from the keyboard, or you can use the input from one of the probes to trigger it.

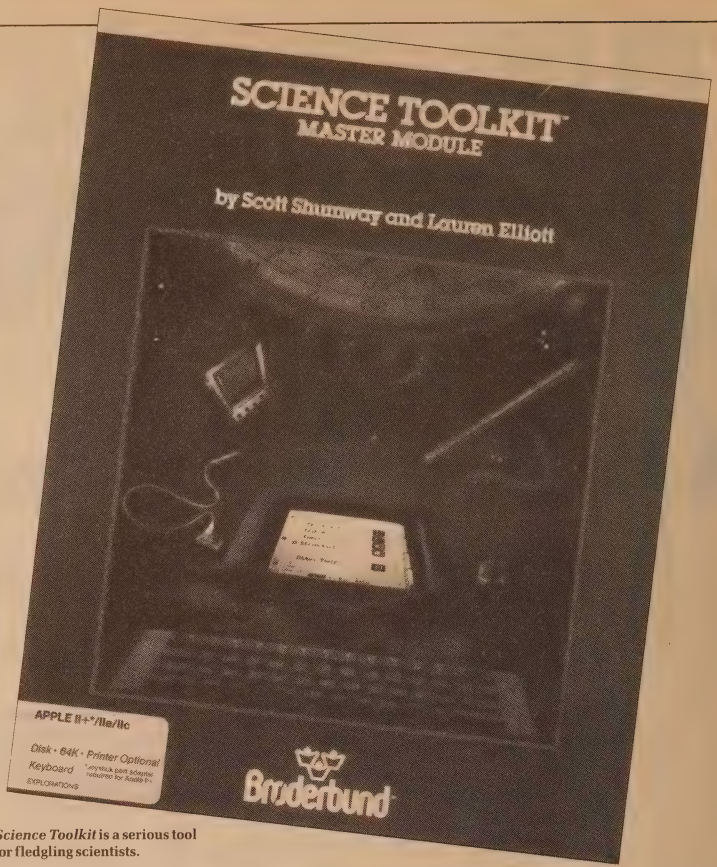
The *Science Toolkit* software includes a "strip chart recorder" that can sample and print out up to 4000 measurements ("data points") over periods ranging from 5 minutes to 24 hours. The program will work with just about any Apple compatible printer — no graphics capability is required. A second disk drive can be used to save data, and there is a full set of disk utilities you can access within the program to format a disk and load, save, delete, or catalog your experimental data.

The look and feel of the software is based on the metaphor of a lab notebook. The menu screens are set up like pages, with checkmarks indicating the selected options. Everything is done from the keyboard, since the joystick/mouse port is already occupied.

What can a science teacher, or a future Nobel Prize winner, do with all these resources? A 128-page illustrated manual, spiral bound to lie flat, provides 27 beginning experiments that employ common objects and household materials to demonstrate some important laws of physics. Don't expect to measure the speed of light, or the charge on an electron — these are experiments for the elementary or junior high school level. The timer is used to replicate Galileo's famous experiment with falling objects. There are also some experiments in plant growth that investigate the effects of heat and light, and some kitchen chemistry.

Brøderbund's usual standards of meticulous documentation are marred only slightly by the light gray ink, too-small typeface and crowded page layout. Most teachers would prefer a less stylish, more legible book.

The documentation emphasizes safety, as befits any product intended for young people. The software triggers an audio alarm and pops up a dialog box if the temperature probe reads higher than 140 degrees F. Other dialog boxes caution the user when there is any risk of losing data. *Science Toolkit* formats data disks using a fast custom DOS that does not look like DOS 3.3 or ProDOS to other utility programs.



***Science Toolkit* is a serious tool for fledgling scientists.**

The package was completely compatible with the Laser 128 and the Franklin Ace 1000. To use the interface box with an early Franklin or an Apple II Plus, an inexpensive adapter ($5.95 by mail order) is needed to connect the 16-pin motherboard socket to a 9-pin connector. The Apple IIGS will need a new version of the hardware, since it does not use the same kind of joystick port as earlier Apple II's.

Science Toolkit is being well supported by Brøderbund. There are already two expansion modules. Module 1, *Speed and Motion*, includes an additional photocell, an analog speedometer, a digital tachometer and a balloon-powered toy car. Module 2, *Earthquake Lab*, provides parts to build a seismograph using the photocell from the Master module. A third module on the human body will deal with things like heart rate and reaction time.

Science Toolkit could be a new lease on life for thousands of obsolescent Apples and compatibles that have only limited future prospects. Rather than being consigned to the junkheap or the closet, they can be reborn as lab equipment. Schools and research institutions can do this for a fraction of the cost of new lab equipment. The low cost and pretty graphics might give an erroneous impression that this is merely a science toy. It is not. It is serious scientific instrumentation. Like any good instrument, it can even be calibrated against a standard if one is available. The calibrated correction factors can be retained by the software. Brøderbund should be encouraged to publish detailed technical specs for the interface so that third-party vendors can get into the act with compatible devices. (Brøderbund, 17 Paul Drive, San Rafael, CA 94903-2101.)

Keyboard Cadet

Published by: *Mindscape*
For: *Amiga*
Suggested Retail: *$39.95*
Reviewed by: *Nathan Barber*

Keyboard Cadet makes learning the fundamentals of touch typing fun by using arcade-like techniques. It requires an Amiga with 256K of memory and one drive. The manual states that the program will work with Kickstart 1.1 or higher, although it does not work quite right under Kickstart 1.2 Gamma 1. The disk is copy protected; this is a serious drawback, since the high score file is saved to the same disk.

Keyboard Cadet's manual explains the basics of correct typing style: posture, home row placement, and looking at the screen rather than at the keyboard. Should you be interested in learning the Dvorak keyboard, the manual supports this layout along with the standard QWERTY. The rest of the manual is dedicated to explaining all the clickable gadgets the program utilizes.

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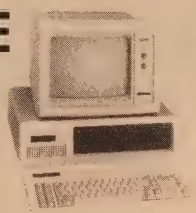

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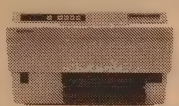

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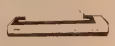

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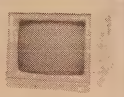

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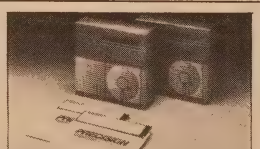

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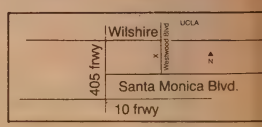

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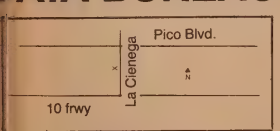

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The program proceeds, by steps, through fifteen different lessons ranging from the home row keys to timed typing tests. The program makes this interesting by displaying the letter to be typed on a grid that resembles a gunsight. The object of the game is to hit the right letter on the keyboard before it can hit your spaceship. The lessons each end with the user typing words made up of the letters just learned in the previous lesson. This is good reinforcement and provides some quick practical experience.

Keyboard Cadet has three skill options: Fast, Superfast, and Hyperfast. Fast mode is just fast enough to force the beginner to look at the screen rather than at his fingers. As an aid, a picture of the keyboard, either QWERTY or Dvorak, is kept on the screen at all times. Letters typed correctly are shown in yellow and those that are mistyped are shown in red. Hyperfast mode is for the real speed demon who has nothing better to do than show off his typing prowess. The program saves the user's standings to disk, which makes it easy to keep track of which lessons have been completed and which still need to be done.

Keyboard Cadet has several features that work as both tension breakers and typing helpers. Once per lesson, a large mothership pops up and whines out a laser sound. This is your signal to hit all the keys on the home row as fast as you can. It helps stress the importance of correct finger placement and also gives you a slight rest from typing words like "quagmire" that send your poor fingers scurrying all over the keyboard. The timed typing modes let you choose between "typewriter" and "word processing" mode. In typewriter mode you must remember to hit the return key at the end of a line, and you cannot make corrections to your words. Word processing mode allows word wrap and mistake correction (with loss of time, of course).

I find that *Keyboard Cadet* serves its purpose well. A couple of years ago I typed at 140 words per minute. I got a little sloppy and began to move off the home keys during some of my long stints at the computer keyboard. This developed into a bad habit and brought my time down to about 100 WPM. *Keyboard Cadet* really helped take up the slack by making me "relearn" the correct ways I had let slip, and my speed is now back up to a respectable 120 WPM.

I would have liked a couple of additional features. One is a lesson or two on using the Amiga's numeric keypad. Another is a lesson focusing on the special keys that surround the computer keyboard like Control, Alt, Tab, and the open and closed Amiga keys. Normally these keys are not used much, but being able to hit them quickly in a touch typing environment is a sure way to speed up productivity.

Keyboard Cadet teaches typing without the excesses of sound and graphics found in some other programs. One other Amiga typing program makes a large explosion on the screen whenever you hit the right letter, which I personally think is a bit much. *Keyboard Cadet* will get the job done and do it in an entertaining fashion so that the user will not fall prey to the boring drills found in other non-computerized typing classes.
(Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 800/221-9884.)

GRAPHICS

Blazing Paddles

Published by: *Baudville*
For: *Commodore 64, Apple II*
Price: *$34.95*
Reviewed by: *Dennis Nygard*

One of the prime reasons for the invention of computers was to make tasks faster and easier. When it comes to creating graphic displays, *Blazing Paddles Illustrator* does just that. Pictures, diagrams, and text are quick and easy.

Blazing Paddles makes use of an icon menu and supports several input devices including joystick, touch tablet, trackball, paddles, and light pen. A trackball and light pen were not available for testing; all other devices worked quite well. *Blazing Paddles'* features include the standard graphics functions of drawing lines, boxes, and circles as well as a freehand sketch mode. However, some rather nice additions include the filled box and filled circle, and the ability to load shapes from shape files. There is also a spray feature, an electronic equivalent of the airbrush.

Colors can be handled in two different ways. The first is called "bit optimization" and allows the use of any of 16 colors or the mixing of any two colors. The second mode is referred to as "register selection" and is addressed in the back of the instruction booklet under "advanced color techniques." This includes a short description of how the color memory of the computer works and a very brief explanation of how and when to use this mode.

Other supported features included disk handling and the ability to send your masterpiece to print. Also included is a window option that allows you to cut out a part of your drawing and paste it somewhere else on the screen, or in several places like a stamp. A useful option is the ability to cut out a window and save it to disk for use later or in another illustration.

Initial startup is achieved by loading and running the first program on the disk. Loading time is approximately two and a half minutes. Once the program's loaded, you are given a menu choice of the input device you wish to use. Once you've made that selection, there is another load of approximately 30 seconds.

Blazing Paddles proved to be very easy to use; the 28 page instruction booklet covered all of the basic actions for each item shown on the menu. There is also an error correction function called the undo feature built in. This allows you to discard the last action performed, whether it was a line or filled-in color. Undo will, however, only work to erase the last action.

The literature which accompanied the software included a listing of shape tables disks which could be purchased in addition to the ones included on the program disk. However, I could find no way of producing your own shapes. The nearest equivalent is to draw the shape, use the window to cut it out and then save the window.

Blazing Paddles covers a wide range of applications and uses. The icon menu is easy enough for pre-school children to work with, while at the same time it has enough features to provide for the artistic or technical sketch. If you are interested in using your computer to do graphic work, then check out *Blazing Paddles*. I think it's well worth the price. (Baudville,1001 Medical Park Drive SE, Grand Rapids, MI 49506.)

GAMES

Commando

Published by: *Data East USA Inc.*
For: *Commodore 64*
Price: *$29.95*
Reviewed by: *Kirk H. Lesser*

The perspiration runs into my eyes as I throw the grenade. I rub the stinging salt from my eyes and see the explosive effects of my perfectly-thrown grenade. I can't stand still for long, though. Too long of a pause and I'll end up looking like those hostiles who got the shrapnel from my grenade.

Stop it! Got to get any thought of personal injury out of my brain before it clouds up my instinctive reactions to the enemy. I begin laying down machine gun fire in front of me and watch as three of the enemy dance, then fall to the ground. Then a dreadful thing happens, more painful and torturous than death itself—my phone rings! So much for this battle.

Commando was a great game in the arcades. Unfortunately, Data East was unable to manage the same for the microcomputer version.

Your object is to be a bloodthirsty Rambo-type character, destroying the enemy with your machine-gun and grenades; to go through the enemy's Iron Walls, and then destroy their base. As soon as you reach an Iron Wall, the ruthless mongrels will seem to be coming out of the woodwork as they continue their relentless pursuit, trying to destroy you before you can get through the Iron Wall.

The game, after booting, starts with a title screen accompanied by the official music from *Commando*. Pressing the fire button will start the game. You are the little blue guy at the bottom of the screen, and the enemy is any figure in the other colors, such as grey, green, and orange. Moving your joystick will move your fighter accordingly. The fire button fires the machine gun in the direction your warrior is facing. Pressing the space bar will throw a grenade.

You have to face many obstacles during the game, which is certainly no picnic. The obstacles are mortars, machine gun nests, trenches, water, and of course, the enemy with grenades and bullets. There are also trucks, cars, and motorcycles that attempt to run you down. You must also rescue allies who have been captured by the enemy, which earns you bonus points. After destroying the enemy's base, you start over from the beginning at an allegedly higher level of difficulty, which I honestly didn't find any harder than the level I had already completed.

Your progress in this gory endeavor is somewhat limited by inconsistencies and anomalies in the program. For instance, the documentation states that when you get to the enemy base and kill every last breathing, moving, person that comes out at you, you then destroy the building. But after passing through two iron walls and upon reaching the base (which looks like a two story family dwelling), I somehow managed to go through the enemy base without any sort of an explosion. I also received this message,"Congratulations on completing your mission!" and the game started from the beginning again!

There were other errors that I noted during the program, too. When there are four or more of the enemy, they begin to flicker; occasionally bullets and grenades will go through them without any detrimental effect. I think the problem here revolves around the number of sprites the C64 can handle at one time; the game may try to manipulate too many sprites at one time. The enemy also has some men that seem to specialize in grenades, because those explosive pineapples seem to rain down upon you continuously. I also noted that if you cause your man to leave the screen momentarily, the upper half of his body is missing when you bring him back. Instead of throwing grenades, he'll throw the upper half of his body—an extremely strange sight.

I enjoyed *Commando* for a little while, but then became quite bored. Perhaps a dyed-in-the-wool arcade game enthusiast would enjoy this program more than I did, but after a while, play becomes "old." It seems to me that Data East could have put in a little more effort into *Commando*. (Data East USA Inc., 470 Needles Drive, San Jose, CA 95112.)

Jan Lewis *continued from page 14*

because it can communicate visually and orally, both delivering more benefit and making it easy to use. And we're even more excited because with CD-ROM technology, the computer finally has promise of really being a useful device in the home. Up until now, most people bought computers to play games or teach their kids to program, basically. And, with the kind of systems you can build based on CD-ROM, we really think that there'll be an opportunity to put the computer—whether it's called a computer or not, I mean, it might be a computer in sheep's clothing, or it might not be a computer at all—but you put that in people's homes and really provide a useful tool.

CD-ROM—The Victrola Of The '80s?

There's more in the way of similarities between the record player and the personal computer than we tend to think about. Some people may buy a computer to run one program, like *Lotus* or *WordStar*, but more people will buy a computer if it will run many other software packages today and in the future. (Hence the gravitational pull of de-facto standards and cloning)

Same with record players. In the early days of the introduction of the record player, the initial buyers bought the player to listen to a very limited selection of records. The early buyers of the record player didn't have a Tower Records or a Wherehouse Records to run down to and select the latest titles. The early buyer was the pioneer. He bought the player to enjoy the limited selection. Maybe volumes and availability of titles would go up, but that was a risk that the early user of a technology took.

A similar phenomenon is likely to happen with CD-ROM. For example, Microsoft has announced its first consumer CD-ROM product, Bookshelf. On one CD-ROM, Bookshelf contains a variety of reference material, all easily-retrievable at the whim of the user. Lots of computer users will pay $1,000 for Bookshelf, a package which includes the Microsoft published works and the bundled Amdek Laserdrive-1. The CD-ROM buyer of today is the descendant of that early record buyer of yesteryear. Today, these descendants will buy the "record player" (CD-ROM drive) to play one "record" (e.g. Bookshelf). But eventually, there'll be lots of "records" (titles) for the general Joe Public, who, by that time, probably has a CD-ROM player for which he paid $300-$500.

Now, how do we get there from here, considering that CD-ROM hardware and software bundles start at $1,000? After all, Lotus's One Source (weekly stock market data on CD-ROM) is up to $26,000 per year, the Grolier's Encyclopedia is $1,000-$1,500, (and that doesn't yet include the kind of line art that you get in a hard-copy Grolier's!), and Bookshelf is "mass market" at a cool grand.

Well, here's how: The early buyers (the descendants of the early record player buyer), justify $1,000 for something that can be used with one record—Bookshelf, for instance. But then, if Microsoft gets its way, and the MS CD-ROM extensions are built into the drives, then other titles, available for $199-399, would rapidly become available for the buyer who initially paid the $1K to "listen to" one "record."

Probably many of us reading this say that's nuts. Who would buy a record player for only one record? Well, think about it. If the record player were a recent invention, and you heard Billie Holiday singing "Take A Little Piece Of My Heart," wouldn't you consider buying the record player just to listen to Billie for awhile? This phase of the cycle generates more titles, as volume brings price down and as decreased prices increase volume. This phase provides the early buyers with more usefulness from their purchase, and allows people who haven't bought one to start thinking about it.

In the final analysis, cheap and easy access to data bases will be the Great Equalizer of the Information Age.

Eventually, a crossing of two cycles occurs. The general public starts thinking they wish they could afford one. But they can't.

Simultaneously, the world is hit with the tail of the compact disk phase which the world economy is going through now: not enough capacity to produce the compact disks the consumer wants. More manufacturing facilities are built. Inevitably, this leads to an overcapacity of CD facilities. With a little bit of retooling, these factories are converted to CD-ROM drive production facilities—just in time to bring the end user price down to under $500 and to bring on the next boom cycle.

No more Information Lords and Information Serfs. In the final analysis, cheap and easy access to data bases will be the Great Equalizer of the Information Age. ☐

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USER GROUP NETWORK

By Mary Eisenhart

We got this scary-looking envelope from the **City of Berkeley Police Department** last month. Racking my brain for some forgotten parking ticket come back to haunt me, I was much relieved to discover a cheerful letter from **Police Chief Ronald D. Nelson**, informing all of us that the Berkeley PD has set up a public relations/community BBS known as **The Guardian.** Operating 24 hours a day, seven days a week, at both 300 and 1200 baud, The Guardian can be accessed at (415) 644-6806.

Says Chief Nelson: "The board was created to increase communication between the community and the Berkeley Police Department. It will list Crime Prevention information, including Neighborhood and Business Watches, crime statistics and recent press releases. Community organizations are encouraged to call and post events. Everybody is invited; you need not be a Berkeley citizen." The sysop of the board is **Officer Carl Orsi,** a familiar figure in our BBS listings for some time. So check it out—and maybe encourage your local PD to do likewise.

It was great to meet some new friends and see some old ones at the **Computer Faire** in March. User groups played a significant role at this gathering, often providing a forum for displaying the wares of absent hardware and software companies.

It was also great to attend some of the various conferences at the Faire, which covered a variety of topics from The Future Of Computing (anybody's guess...) to Computers And Music to Desktop Publishing Etc.

One of the more interesting sessions was a meeting of the **Homebrew Computer Club,** which, as some of you may recall, ceased regular meetings a few months ago. However, some things are too good to die, and the Faire provided an opportunity for Yet Another Gathering, in the course of which it emerged that **Lee Felsenstein** has Another Idea.

This time, it's not a computer. It's a different kind of user group, which Felsenstein dubs "**Ronin,**" after masterless samurai in medieval Japan. Knights-errant of the computer world, ronin constitute a sort of "horizontal user group," dedicated to furthering the constructive use of computers in society; as he says in "The Ronin Manifesto," passed out at the meeting and posted in the Hackers/Homebrew conference on **The WELL,** "personal computers can be used as communications tools to allow individuals more easily to form free associations to pursue mutually agreed-upon aims."

Practical applications of the ronin principle are likely to include the salvaging and restoration of obsolete computers, especially for the use of service and nonprofit organizations that probably need computers and can't afford them, the evolution of hardware and software standards for these systems, advice to manufacturers on the development of new equipment, and building a communication network. "We will, in effect, constitute a horizontal user's group, spanning many lines of hardware and software, and dealing with the requirements of the use of the technology. We will complement and share membership with the vertical user's groups, and our efforts will reinforce each other," says Lee.

The ronin concept is still in the early planning stages. Interested parties who'd like to make suggestions and otherwise take part in this evolving project are invited to send their names and addresses to Golemics, Inc., Department R, 2600 10th St., Berkeley, CA 94710.

Speaking of The WELL, as we were a minute ago, there's good news for those who have been puzzled by its multiplicity of commands and functions, and have somehow managed not to download the online manual. There's now a hard-copy version of this manual, which current and prospective users may obtain by sending $3 to The WELL at 27 Gate Five Road, Sausalito, CA 94965. State that you'd like the manual, and don't forget to include your Snail Mail name and address. Or call (415) 332-4335 if you'd like more information.

There are those who claim that **CP/M** is dead, and there are those who cling to their old Osbornes/Kaypros/Morrows/etc. for dear life, resisting the blandishments of IBM clones and the onslaught of Atari STs. If all goes according to plan, the august **Bob Athey** and I will be speaking at the **East Bay FOG** meeting on May 13, and we look forward to meeting some of you. One of the things we're likely to talk about is the future of CP/M—as even FOG itself becomes more involved in MS-DOS technology, who are those CP/M users anyway, and what are they using their machines for, and what should *MicroTimes* be doing, if anything, to support them? This is something we're thinking about quite a bit lately, and we heartily encourage your comments, either at the FOG meeting itself or by mail (e- to **microx** on The WELL, 415/332-6106, US to 5951 Canning Street, Oakland 94609).

Meanwhile, to give the clone community equal time—**Aubrey Pilgrim**, who periodically graces our pages with advice on economical clone-building, has written a book on the subject, **Build Your Own IBM Compatible And Save A Bundle.** Those of you who've read Aubrey's articles in the past know that they're full of practical advice, taking even the non-techie through the building process in easy stages. It covers PC, XT, and AT clone models and offers useful hints on customizing systems for your own needs. So if the main thing that's been keeping you from the clone of your dreams is a certain lack of independent wealth, wait no longer, buy this book. It's available in hardback ($22.95) or paperback ($14.95) from TAB Books Inc., P.O. Box 40, Blue Ridge Summit, PA 17214. You can call TAB at (717) 794-2191 for more information.

Also on the PC front, **Loyd A. Cribbs** of the **San Francisco Personal Computer Users Group** writes in with the latest info on this well-established organization, founded in 1982 and now serving users of all machines running MS- or PC-DOS. The group now has a 24-hour hotline recorded message at (415) 221-9166, and meets on the third Monday of the month at Fort Mason Center in San Francisco—SIG meetings and software sales commence at 7 pm, the general meeting at 8. Meetings generally include product demonstrations, presentations by guest speakers, special instruction for beginners, and networking opportunities. Special Interest Groups so far include those dedicated to *Paradox, Framework, Lotus 1-2-3* and *Symphony,* desktop publishing, Microsoft *Word,* Turbo Pascal, C language, *dBASE,* Modula-2, Compaq—and one for Teachers With PCs.

SFPCUG's May meeting will feature the irrepressible **John Dvorak,** sardonic columnist extraordinaire, so don't miss it. And if, in the meantime, you'd like more information than the hotline provides, give Loyd a call at (415) 751-5219.

Southern California Amiga-ites take note: **Geri Lynn Peak** of the **Los Angeles Amiga Users Group** would like you to know about the upcoming **Amiga Show,** sponsored by SCAN, the Southern California Amiga Network, comprised of several Amiga user groups. Geri promises that the new Amiga 500 and 2000 will be prominently featured, and there'll be presentations of third party products, door prizes and other goodies. The show takes place at the Shrine Exhibit Hall in Los Angeles, in conjunction with the **Computer Sellathon,** on May 16 and 17. For exhibitor information, raffle tickets, etc., contact SCAN, P.O. Box 947, Culver City, CA 90232, or call (213) 387-3698.

Also in SoCal, **Fred Blechman** reports that the **Sanyo Users Group** of Los Angeles has changed its meeting location. Meetings are still on second Wednesdays at 7 pm, but they're now held at Cal State University, Los Angeles, in the South Pasadena room on the fourth floor of the Student Union, Building 5. If you'd like more information, call Fred at (818) 346-7024.

And, lest you should forget the **Timex-Sinclair,** faithful correspondent **John Petersen** of Manhattan Beach reports on the latest doings at the **South Bay Computer Club.** Seems that modems are a hot topic these days, and **Ed Grey** has been showing off his Specterm II 64-column 300/1200 baud modem program to interested folks. Also, **Dave Clifford** is running the club's BBS at (213) 329-3922, where he gets calls from all over the country seeking his expert advice on hardware building and related matters.

The **Ambitious Achievement Of The Month Award** goes to **Richard Yim,** who writes in periodically about the various doings of the **Family Radio Forum Christian BBS.** Callers to the BBS at (415) 562-5483 can now download the entire King James Bible *and* accompanying Bible search programs. So don't rip off the Gideons—download your own Bible from Richard's BBS instead. If you have a 2400 baud modem, so much the better ...

That's it for now. Keep that news coming, and we'll see you next month. And don't forget that if you'd like issues of *MicroTimes* delivered to your group, this can probably be arranged. Send us the relevant coupon in this issue, or call our distribution department at (415) 652-3810 to discuss details. □

BULLETIN BOARDS

206

The Board Of Review. (206) 361-8018. 300/1200 baud, 8-N-1, 24-hours, Commodore. Sysop: Ron Strauss. .

28 Barbary Lane. (206) 323-2828. 300/1200 baud, 8 bits, 1 Stop Bit, Full Duplex, No Parity, 24-hours. Sysop: Mrs. Madrigal.

209

Region 7 TEC Center BBS. (209) 571-5085. Specializing in music and schools. 24 hrs, 300 baud. Sysop: Dan Guerra.

Inn Finity BBS. (209) 521-6240. Inn Finity is an Atari based BBS. Operates on a 130XE with 320K. Signalman 300/1200/2400 baud, 24 hours a day. ATASCII—ASCII. Sysops Buzz and Jann Kelley.

Bullseye BBS. Stockton, CA. (209) 474-FIDO. IBM and compatibles. 300/1200/2400 baud. Open 24 hours, 8-N-1, FidoNet 161/31 Valley PCUG. Sysop: Bob Loeber. Validation required. Lots of MS-DOS shareware.

The Spotlight BBS. (209) 368-5591. 300 baud, 24 hours, 8-N-1, dual drive Commodore 64 operated. Sysop: The Spot.

213

Aware II (213) 851-0780. Sports BBS with different discussion boards centered around USFL, baseball, etc.

Marina Matchup (213) 397-6300. This Mar Vista-based dating board operates with Martian software.

Lynzie's Motherboard (818) 508-6482/(213) 650-0519. 24 hours, 300/1200/2400 baud, 8-N-1. Private E-mail, download library, dating matchup, interactive chat between users, 4 phone lines on rotary. Public boards include employment, food and restaurant reviews, sci-fi, political, debate, for sale and many more. Monthly social happenings for local users. Sysop: Lynzie Flynn.

Bulletin Board System. BBS devoted to handicappers and racing fans in So. Cal. On line every weekend. Log-on: race data for Santa Anita, Hollywood Park and Del Mar. (213) 934-6026.

Videodrome BBS. Where computers and video meet. (213) 324-5882. Open weekdays 4 pm - 2 am, weekends 12 pm - 2 am. A Commodore 64 system.

HUG1. The official BBS of the Hollywood Commodore User Group (HUG). All HUG members and visitors are welcome to drop by. (213) 874-8256.

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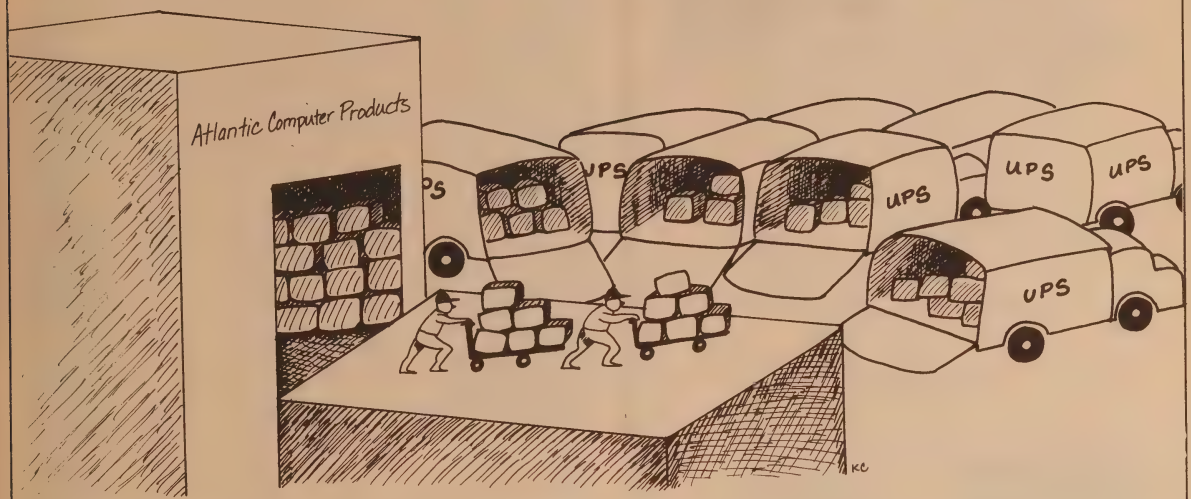

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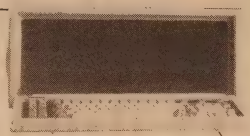

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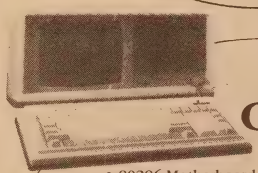

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The Computer Consultant's Network, (213) 479-4074. Running a modified version of Martian! Software. 24 hours a day. This is not a job board, but merely a place for computer professionals to network and share information.

Computer Conference Center. (213) 212-5267. TBBS w. Commodore, IBM, TI, Atari, Epson, Appie etc. sub-boards. Large DL with CP/M, MS-DOS and TR-DOS programs. Laurie Flood, sysop.

Hughes Aircraft Message Service. Uploads and downloads for Mac, IBM, Commodore, Atari, etc. Public message boards. (213) 549-9640. 300/1200, 24 hrs., 7 days.

Monolith-1.7 great public boards, private electronic mail, social events. (213) 659-JEDI. 24 hours, 1200/300. Sysop: Erik Goldman.

Mid-Cities Atari ST BBS. 300/1200, 8-0-1, 24 hours. (213) 867-1943. Sysop: Darin Ferraro.

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408

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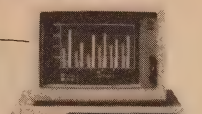

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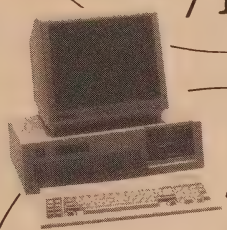

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Comp-U-Ease BBS. (408) 286-8332. 300/1200/2400 baud, 24 hours, 8-N-1. IBM and Atari ST oriented. No fee, dBASE SIG, lots of downloads. Sysops: Stuart Smith and Eric Smith.

Professional Software Programmers Association. 830 Bay Avenue, Suite G, Dept. F, Capitola, CA 95010. A 24 hour service and support bulletin board for computer professionals. (408) 462-2829. 8 bit, no parity, 300/1200/2400 baud. No fees. Product reviews, professional job registry and consulting registry services. Ask for copy of the Association's free monthly newsletter and membership information packet.

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415

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Software First BBS 24 hrs., 300 baud. (415) 459-1544 Marin, (707) 579-1478 Sonoma. 23 message boards restaurant, sales, Amiga, ST, women's forum, reviews, sci-fi, general E-Mail, monthly specials on hardware, software, peripherals.

Bay Connextion BBS (415) 621-7561, 9pm - 9am. 300/1200 baud at 8/W/I. Macintosh Software, Classifieds, Personals, Sexual Freedom, and Star Trek. Claude Wynne, sysop.

Earth-Rite RBBS. We specialize in Earth Religion and related topics. We are not a software exchange. (415) 651-9496. 24 hrs., 300/1200 baud.

MacQueue BBS (415) 661-7374. 100% Macintosh BBS with 8 megs software for download, message base, and FidoNet Mail (Net 125 Node 2). Instant access, 24 hours, 300/1200/2400 baud. See you on the Q!

MacCircles BBS (415) 484-4412. 24 hours, 300/1200 bps, Mac/Lisa downloads, message base, E-Mail.

Spiritual World. Center for sharing spiritual development. 300/1200, 24 hrs, (415) 366-9033.

Super Resume. A free resume composition system for software engineering and MIS professionals. Produces a detailed, accomplishment - oriented resume. Also the latest weekly FidoNews and FidoList, plus two unique free-form, full-text data base systems available for downloads. No charge. 300/1200, 8, 1, N. 24 hrs. (415) 546-0119 modem, (415) 788-6000 voice.

Co-Ed & Associates. (415) 938-9470. 24 hours, 7 days, 300 / 1200 / 2400. CPM / CPM+ / MS-DOS / Morrow / Zenith / PC and clones. Sysop: Werner L. Gumpert.

Humor & Wisdom. A board dedicated to the exchange of comic relief and things to ponder in a new age of consciousness. Free, as all things should be. 300/1200 baud, (415) 937-2508.

Open Campus BBS (415) 895-0135. Operated by San Leandro High School and Apple Eaters Users Group, 5 meg, 20 message bases plus library. 24 hours, 300/1200. Sysop: Bob Shayler.

Photobytes, a photography oriented BBS, features product information, help files, photo contest listings, plus much more. Sponsored by Wentling Camera Shops. 300 baud, (415) 439-2515, 24 hrs. 7 days.

The Castle BBS. (415) 355-8150, 24 hours. 300-500 baud, 8 bit, 1 stop, no parity. We have 4 message bases, e-mail and UL/DL. CBM oriented but all systems welcome.

Low Overhead BBS. User-friendly BBS, 24 hours, 7 days a week. IBM software, motorcycles and motorcyclists. (415) 763-6794 or (415) 835-9959.

Guideboard, Cabbie's Guide to San Francisco. Where to go for restaurants, doctors, auto repair, etc. The sysop gets his tips from driving a cab; the callers furnish the rest. The BBS also has an resident astrologer, Swami Tommy. The Swami gets his tips from the stars. Ask him any question. (415) 864-3858, 300/1200 baud.

Entrepreneurs BBS: Official BBS for Community Entrepreneurs Organization (CEO), and XT Compatible Club. 1200/300 baud. 24 hours, 20 megs., 8 bits, no parity. Entrepreneurial networking and information, brainstorming, and on-line support for IBM XT clones. Sysop Edwin Rutsch. (415) 552-9070.

APT Action BBS. C64 board dedicated to exploring on-line entertainment. Free ACTION-AUT software. 24 hours, 300 baud, (415) 322-3213.

RSVP BBS. (415) 659-9169, 300/1200, N-8-1. 24 hours. Sysop Jim Thomas. FAUG Amiga User Group discussion and file area, Dr. Who forum, Sanyo, IBM, CP/M files, CP/M forum, Ohlone College forum.

Marin Community BBS (415) 459-3326. 300/1200 baud, 6 pm - 10 am M-S, all day Sunday. 520 ST/Atari information. Sysop Dave Powers.

MacCircles EBBS (415) 484-4412. 24 hours, 300/1200/2400. Running Red Ryder Host software on a Lisa 2/10 (Mac XL). Large software exchange, private mail system, public messaging.

Musician's Network BBS. Musician's information ex-

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520 ST Atari BBS (415) 783-5545, 24 hours, 7 days a week. 300/1200, 8 data bits, 1 stop bit, no parity. Official Sixteen Bit Atari BBS of the San Leandro Computer Club, this system offers full support for all Atari ST system users. Currently running on a ten megabyte hard disk system, the system has many special interest areas including graphics, C, Pascal, LOGO, Basic, MIDI / music, communications and more. Supports four types of XModem/Modem7 and Kermit protocols. Call today! Sysop: Michael Curry.

AutoCAD RBBS (415) 547-5264. 24 hours, 7 days, 300/1200 baud, 40 megs online. Sysop Robert Schultz. Supporting AutoCAD, the world's most widely used PC based design/drafting software. There are 4 megs of AutoCAD drawings plus third party public domain programs that work with AutoCAD (i.e. menus, Autolisp and lisp macro libraries) available to download.

Insight BBS (415) 229-0551. 300/1200 baud, 24 hours, 7 days, 8-N-1. Now running PC-Board on an IBM clone with 20 megs on-line. The board now has 7 conferences and is looking for "message" oriented people who love to talk. There are no status levels, and everyone is invited! Carl Orsi, sysop.

AIDS Information BBS (415) 626-1246. 24 hours, 300/1200 baud. Sysop Ben Gardiner. Free. All welcome. Statistics from Atlanta and San Francisco displayed, updated regularly as received. Sample Q & A about AIDS, based on calls and phone exchange experience. Mail send/receive on AIDS; please not on other subjects due to limitation of one phone line. Please also no more than one hour per day. Mobilization Against AIDS information here. Calls to this BBS never disturb anyone.

Actrix Enthusiasts RBBS / RCP/M (415) 968-1783. 300/1200 baud, 24 hours, Free. Registration required. 46 megabyte CP/M system. In Mountain View. Sysop: Andy Bajka.

BBS-JC Just Computing. (415) 961-7250, 7E1/8N1. 24 hours/7 days, 300/1200/2400. Amiga and CBM public domain software. If it's new, see it here first! 8 sections including Commodore announcements are currently in operation. This board is especially for "Silicon Valley" Commodore users. Sysops: Thad Floryan and John Cronin.

Bug's Net HP. This bulletin board has over 20MB of PD software available. Message areas include HP300, IBM PC Technical and consultants forum. Fido node #10/777 (pending). 300/1200/2400 baud. 24 hours. (415) 236-1823. Sysop: John Buginas.

Professional Software Programmers Association. 1830 Bay Avenue, Suite G, Dept. F, Capitola, CA 95010. A 24 hour service and support bulletin board for computer professionals. (408) 462-2829. 8 bit, no parity, 300/1200/2400 baud. No fees. Product reviews, professional job registry and consulting registry services. Ask for copy of the Association's free monthly newsletter and membership information packet.

A.M.U.L.E.T. II: Inform-Serve. (415) 989-5054, 24 hours, 7 days, 300/1200 baud. 95+ subboards, on-line gaming and many RPGs, 52 MB of on-line storage. Sysops: The Starmaster/Magician Merlin.

L'Expres! (415) 538-6340. Atari, 300 baud, 9pm-6am daily. Runs BBS: Express! software. Sysop: Greg Manubay.

The Dead Knight's Tavern. (415) 364-6877. Fantasy role-playing bulletin board system. 24 hours at 300 baud. NO FEE. System Overlord: Shane White a.k.a. Samuel Kline.

MicahLink. Free, 24 hours, 7 day private BBS for Mac users. Sponsored by Micah, Inc. On-line support, discussions, directory of MicahDrive dealers. (415) 771-1119 modem, (415) 331-6422 voice.

The Pirate's Hollow BBS. 24 hours, 300 baud. Ye Cap'n: The Atari Pirate. (415) 593-6784.

Draco-Net Prime. (415) 474-8608, 300/1200. Official BBS for: A+ Magazine, International Apple Core, San Francisco Apple Core, Apple Three Users of Northern California, and Carrier.™ 24 hours, no fee. Leonard Reed and Jono Smith, Sysops.

Recovery BBS. (415) 621-5206. FidoNet Nodes 125/9 and 125/31. If you are in a 12 step recovery program, or think you have a problem with alcohol or drugs, or if you are compulsive about eating, smoking, or sex and love, call. Share your experience, strength and hope in message sections that include AA, NA, CA, OA, SA, SLAA and Alanon/Ca. There are meeting listings in the file areas.

Cat's Tail Mega-System. (415) 349-TAIL (349-8245). All welcome. Nearly 100 public message forums, both computer- and non-computer-related subjects. Five on-line games, public domain file transfers for IBM, Apple, CP/M. Running on Apple IIGS. 300/1200, 24 hours.

Family Radio Forum. (415) 562-5483. 300/1200/2400, N-8-1, 24 hours. Download, upload, message, conference participating. For teens, singles, etc. Christian TBBS for everybody. Sysop: Richard Yim (voice 415/568-6200). Also (301) 261-1423 (Annapolis, MD), (712) 246-2115 (Shenandoah, IA), (916) 481-6320 (Sacramento, CA), (201) 736-1859 (Newark, NJ), (813) 269-7957 (Okeechobee, FL).

POPnet Berkeley is 15 lines of fun and games for all. Chat, CB channels, games with others. Mail and bulletin boards, of course. Not free, but cheap. 24 hours, 300/1200, (415) 527-4510. **POPnet San Ramon** is 10 lines of fun and games. Chat, CB channels, games with others. (415) 830-1191. **POPnet Walnut Creek** is 10 lines of fun and games. Chat, CB channels, games with others. (415) 932-4263.

Vaudeville Local. (415) 337-8693. 24 hours, 8-N-1, 300/1200. Vaudeville Local is a BBS dedicated to vaudeville and circus arts. Sysop: Arthur Conway.

Crossroads BBS. (415) 968-9341. 300/1200 baud, 8 bits, no parity. 24 hour operation. File transfer for IBM/compatibles, Commodore 64. Message bases include space travel, singles, political dissent, sexual freedom, stories, poetry, musician's referral, programmer's corner, adventure gaming. No fee. Mike Macgirvin, sysop.

LaserWriter BBS. (415) 261-4813. 300/1200 baud, 24 hours. BBS dedicated to desktop publishing. Sysop answers all related questions. Located within Allen Computer Graphics, desktop publishing specialists. Files, messaging, user groups, e-mail. Upload disks for LaserWriter printout or to order other products offered by Allen Computer Graphics. Macintosh and other computers welcome. Sysop: Tom Allen.

The Records Department. (415) 426-0470. User registration required. Public domain and shareware programs available for download at 300/1200/2400 baud. Caters to IBM; also Apple, Commodore, Atari. Large, friendly discussion section with something for everybody; games, voting booth, technical help. Bill McCauley, sysop.

Silicon Valley Computer Society BBS. (415) 968-6891. 300/1200, 24 hours. Sysop: Herb Shear.

Computer Adventure Center, C.A.C. 24 hours daily, 300-2400 baud, in Fremont. No fees, IBM based but open to all callers. New BBS#: (415) 490-7365. Sysop: Al Demar.

Breakthrough Software BBS. Support for TimeLine users. (415) 892-0408, 300/1200/2400 baud, 8-N-1, XMODEM or Kermit protocols. 7 days, 24 hours.

EBMUG BBS. Running 24 hours a day, 300/1200, 8-N-1 at (415) 848-2609. Private mail system, public messages, Macintosh software.

KAY+FUN RCP/M. (415) 572-8219. MS-DOS, CP/M, modems, business applications (e.g. *dBASE, Lotus, Reflex*, Wordproc). General discussion of commercial and public domain software. Also public domain and private file transfers and more. FREE online registration. 300/1200/2400. Sysop: Ernest Hintz. Sponsored by KAYFUN users group.

Programmer's Circle. (415) 239-1722. 8-N-1, 300/1200, weekdays 3 pm-11 pm. The Programmer's Circle specializes in carrying source code and tools to aid the programmer. Special attention is given to the Macintosh and Apple II computers, but all computer users are welcomed. Data files are online for the Mac and Apple II computers. Sysop: Roger Gibby.

The Live Wire. (415) 540-0529. 300/1200, 24 hours. A digital magazine for the graphic-arts community (printers, typesetters, self-publishers, artists). Free. Sysop: Rick Hepting.

SIGSIG BBS/RCP (formerly MEBBS) is back online! Member of the FOG and PRACSA networks. Supporting CP/M and MS-DOS public domain software and a public-access message system. No fees, novices welcome. Online registration for FOG, PICONET and PRACSA members. 24 hours, 300/1200/2400 baud. Sysop: Jim Switz. Located in Mountain View. (415) 968-7369. Call today!

Cold Moon On A Single Star. (415) 668-6101, San Francisco. 24 hours. Fido board. Chinese culture, history, language, Chinese cooking, discussion, etc. Asian community events. Sysops: Joseph Puig and Susan Chen.

Dr. Don's TBBS. (415) 885-1973, San Francisco. 300/1200, 24 hours. CarTalk and SportsTalk discussion and special interest boards. Private e-mail. All automobile sportscar enthusiasts, sports fans, softball-baseball-football players are invited to call. Sysop: Dr. Don. Co-sysop: Bimmer Pilot.

Centerville RBBS. (415) 793-3037. 300/1200/2400 baud, E-7-1 or N-8-1, 24 hours daily. Sysop: Joe Halbleib.

The Board. (415) 652-8277. 1200/2400 baud, 8-N-1, 24 hours. Public and private conferences, technical support. For AT&T and compatibles; AT&T PC support conferences. Associated with Bay Area AT&T PC6300 Users' Group. Sysop: Troy Blackburn.

Attitude Adjustment. (415) 939-1639. 8/N/1, 24 hours, 7 days, 300 baud. Call today and get your Attitude adjusted...just for fun. If you have an Attitude and want to tell people about it, you know where to call. Small but growing system: 8 message bases, private e-mail, voting, textfiles and a few downloads. Emphasis is on interaction between Adjusters on the message bases. Sysop: Rick Adjuster.

Dial-Your-Match #341 in Hayward. (415) 489-2572. 24 hours, 7 days, 300/1200 baud, no charge. Sysop: The Matchmaker.

Yet Another BBS. (415) 689-8952. 8-N-1, 300/1200, 24 hours, 7 days. Upload/download, entire public domain library of "The Ulternate Source." All makes of software, message base, e-mail. Friendly sysops! Jim and Alex Stewart.

Track 3 BBS. (415) 540-7570, 300/1200 baud, 24 hours, Berkeley. for railfans, roller coaster enthusiasts, transit issues, and the like. Sysop: Robert Parks.

Infolinc RBBS. (415) 672-9270. 8-N-1, 300/1200/2400 baud, over 500 files online, conferences, doors, online chat with other users. Special private line for supporting users, running PC Board 11/6/E, 24 hrs. Sysop: John Palmer.

DYM #56. (415) 964-3255. 8-N-1, 24 hours, 300 baud. Features user match function and e-mail, five message boards including Public, User Activities, The Flea Market (Buy/Sell/Trade) and two Adults Only boards. No fee required, but online registration is required. Sysop: Velvet 150.

Palladin BBS. (415) 332-1655. 1200 baud, 8-N-1, 7 days, 24 hours. Sysop: Al Kalian.

The DeskTop Publisher. (415) 856-2771. 300/1200/2400 baud, 24 hours, 7 days. Dedicated to desktop publishing, with particular emphasis on the use of DOS based hardware and software. Upload/download/messages/conferences. Anyone interested welcome. No fee. Registration required for full participation. Sysop: Freeman Bradford.

The Nimitz DownPort. (415) 276-3677. 8-N-1, 24 hours, 7 days, 300/1200 baud. The Nimitz DownPort offers a wide variety of message bases including Adult. With a BBS that has parties, educational offerings, discussions with nationally- and locally-known "geniuses" and experts, and "hands-on" role-playing games, there is no reason not to dock here. Call today and be a part of tomorrow. Sysops: Lady Godiva and Portmaster Kevin Muldrow.

Marin-Sonoma PC Users Group BBS. (415) 927-1216. 300/1200 baud, 8-N-1. Sysop: Howard Leistner.

California ConneXion Partyline. (415) 927-2739. An adult oriented multi-user, multi-interest system featuring matchmaking, 12 public message boards, on-line chat with other users, questionnaires and more! Very fast operating system. 7 meg system. Currently operating with 3 lines—more lines to be added soon. 8-N-1, 300/1200/222400, 24 hours, multi-line system on rotary. Sysop: Alan.

Impeesa's Path. (415) 582-4863. 1200/2400, 8-N-1, 24 hours. Focused on outdoor activities. Conferences on camping, hiking, fishing and hunting, photography, Boy Scout activities. Also features "Doors," supports graphics. Sysop: Ed Reardon.

The Wizard Net. (415) 481-8413 San Leandro; (415) 232-6981 San Pablo. Full duplex, 1 stop bit, no parity, 8 am-8pm M-F, 24 hours weekends, 300/1200 baud. A user friendly system that utilizes Commodore color graphics. The more time that you put into the system the more you will be able to get out of it. System has bulletin boards, e-mail, voting booth, a chat feature, ul/dl, and online games. There are no fees, and everyone is welcome. Registration required. Sysops: Dave Rasmussen, Keith Parrish, Olivia Parrish.

AI-NET. Public OPUS board with 20 MB of files. Echo newsgroups for dBASE, Technical Forum, Mainframe Forum, Software Evaluation, Buy/Sell, National Mail, and more. Available between 3 am and 11:30 pm daily. 300/1200 settings: 8-N-1. 125/125 in the Matrix. (415) 776-6628.

SFPCjr UG BBS. Sponsored by the SF PCjr User Group. 1200 baud, 8-N-1, 24 hours. Sysop: Larry Buoncristiani.

RSVP BBS. (415) 659-9169, 24 hours. Japan mail exchange, Doctor Who, Ohlone Forum, Amiga Music-net and Tech-net. IBM/Amiga/Atari files. Always something new! Sysop: Jim Thomas.

tsunami bbs. (415) RAM-2-RAM. Graphics specialty board for most microcomputers. Supports wider interchange of graphics files between "incompatible" systems. U/Ls and D/Ls for graphics programs and picture files. Collects and distributes p-d graphic format conversion programs, as well as picture files in Microillustrator-compatible, IFF and CocoMax formats. 300/1200 baud, 8/N/1, 24 hours.

Trading Post BBS. Information Exchange system, (415) 948-4163. Open system with more than 20 discussion groups covering everything from Atari to ZCPR3. Online games and 200+ articles. Free. Sysop: Lars Rosengreen, a.k.a. Eskimo.

SPACE-The Stanford Palo Alto Computer Exchange. A BBS for PC professionals and power users. Validation required. (415) 964-9309, multi-node, 2400/1200 baud, N/8/1, 24 hours. Sysop: Jay Fox.

Production World On-Line. (415) 571-6160, 300/1200/2400 baudd, 24-hours. An additional service from **Production World On-Paper**, a printed publication for the motion picture film, broadcast television, video and audio communities featuring Northern California people and facilities. A variety of information and message bases available. Sysop: Wes Dorman.

Amiga Addicts Anonymous BBS. (415) 283-5469 "BUD-LINX." 24-hours, Xmodem, 300/1200 baud, N/8/1. Sysop: Randy Spencer.

Aardwolf Express Family Forum. (415) 651-4147. 24 hours a day, 7 days a week. 300/1200/2400 baud. Located in Fremont CA. System offers: *Infomat*, an electronic computer magazine; Showcase, shareware and demonstration programs download; complete King James Version of Bible online; Discovery (Christianity); Friends (user profiles and interests) and user opinion polls. Sysop: Veit Anton Johnson.

The Guardian. (415) 644-6806. The Berkeley Police Department's public relations and community service bulletin board. Lists crime prevention information including neighborhood and business watches, crime statistics and recent press releases. Community organizations are encouraged to call and post events. Everyone invited, you need not be a Berkeley citizen. 24-hours, 7 days a week, 300/1200 baud. Sysop: Officer Carl Orsi.

Commodore Connection BBS. (415) 458-1005. 1 stop bit, no parity, 7 or 8 bit word, 300/1200 baud, 24-hours. Sysop: Clint Beers.

AsKKey XPress BBS. (415) 657-1728. AE Line, 300/1200 baud, 24-1, 24 hours, 20 meg system, private E-Mail, several sub-boards, online games. Apple II downloads. No Fee.

S.F. Tea Room. (415) 993-5410. 300/1200/2400 baud, 24 hours. Match Function, IBM Software (3 sections), Macintosh Software (12 sections). Sexually oriented. Sysops: Steve and Ken.

619

Ramona BBS. (619) 789-6235. 24 hours, 300/1200 baud, C128, C64, Amiga, Atari, IBM, CP/M. P.O. Box 373, Ramona, CA 92065. Sysop: Digiteer.

Sysware BBS. 24 hours, 300/1200 baud, (619) 278-8661. Commodore machines only. Sysop: Don Malette.

The Nassau XPress. (619) 433-XPRS. 8-N-1, 300 baud, 24 hours. An information and entertainment BBS with 11 message bases including electronics, amateur radio, computer news, music, adventure games, BBS review. Full access is granted to long distance callers with same day validation for new users. UL/DL available using XModem or Punter. Private e-mail, text files, online games and utilities. Sysop: Dan Wright.

Willy-Net. (619) 535-0816. 300/1200, 8/N/1, Large download and message area. IBM. Sysop: Willy Bergner.

702

Public Domain Software Interest Group. (702) 794-3665. 24 hours, 300/1200/2400 baud, 8-N-1. Public domain software available for downloading, message board, and user supported donations of software. Sysop: T. Heisserman.

707

Napa Valley RBBS / RCP / M (707) 257-6502. Interests in Atari, Apple, Osborne, dBase II.

Survival Communication Forum. Fido 125/7. Focusing on preparedness and self-sufficiency. Multiple message and file areas. A MedNet member system featuring weekly CDC reports, medical text and news files. Open to all. 23 hours daily, 300/1200 (707) 545-0746. Don C. Kulha, Sysop.

R.A.G. (Redwood Atari Group) BBS. 300/1200, 24 hrs. (707) 539-8889. Sysop: Bill Marlin.

STATE BBS ST and 8 bit Atari. Supports all Atari computers. On line surveys, public domain software, discussion and a built in adventure game (if you can find it). 300/1200 baud, 24 hours a day, full duplex. Sysop: Mikkel Lawrence. (707) 585-2194.

Softy's BBS. (707) 437-4334. 24 hours, 8N1, full, 300/1200. An Apple BBS with a technical theme. We have boards for IBM as well. Retail store advertising with discounts for users of this BBS. John Hagen, sysop.

UNIBLAB BBS. (707) 422-1669, 8-N-1, 24 hrs. 300/1200 baud. Community-oriented BBS. On-line games, SIGs, XMODEM protocol, no fee. Sysop: Ben Harris.

Sigma BBS. (707) 274-8561. Call this BBS for the best IBM-PC/compatible RBBS in the Redwood Empire. Over 650 downloadable programs. We feature "Doors" software for your adventure playing moods and Tradewars II, a multi-player galactic challenge. Tradewars can support up to 70 players and features sector movements and planet creation. We also support the latest in RBBS-PC Bulletin Board Software, Procomm communication with utilities software and many other programs. 24 hours, 300/1200/2400, 8-n-1. 72 minutes allowed daily. Sysop: Randy Sun.

Valley of the Moon BBS. (707) 996-7922. 24 hours, 7 days. 300 baud. Free. Primarily set up for Radio Shack and COCO II, but all are welcome. Come join us. Sysop: Wes Ford.

Newsstand. (707) 539-3612. 300/1200 baud, 24-hours. Discussions on philosophy, politics and other topics. No Fee. Sysop: Bryan Magers.

714

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Envlronet. (714) 731-6439, 300/1200, no parity, 8 bits, 1 stop bit. David Salahi, sysop. The online source of information and contacts for the environmental community. To log on, use user id 105, password PARKS.

El Toro RBBS/RCPM. (714) 855-0672. 24 hrs. 7 days/week. 300/1200/2400 baud. No charge, open access, no registration. Specialize in ZCPR3 and CP/M PD utilities. Sections for AMPRO, SB180, dBase II, TPascal, Modula-2, Wordstar, ZCPR3, modems, SIGM and utilities. Over 3000 programs in 88 megabytes online. Public E-mail system. Easy to use ROS system. The collection point for Modula-2 in So. Calif.

K-WEST. (714) 646-3060. 8-N-1, CP/M and DOS. 24 hours, 300/1200/2400. Sysop: Peggy Lloyd.

The Byte Zone BBS. 7 days, 24 hours, 300/1200 baud. Serves all Tandy computers and many others, including MS-DOS. Features adventure help files, electronic mail, message bases and download menu. Sysop: Franco Collino. (714) 639-3566.

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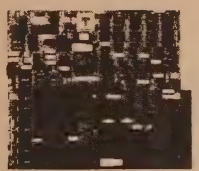

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Reviewed PC Week, p. 73, March 17, 1987

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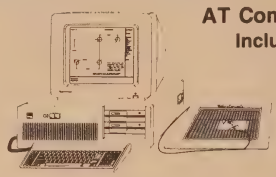

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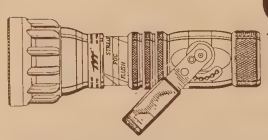

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805

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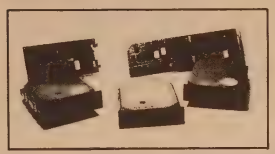

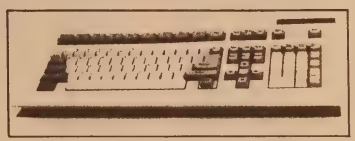

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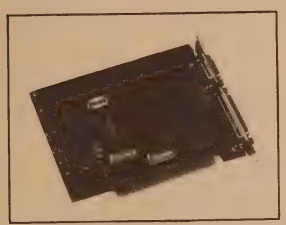

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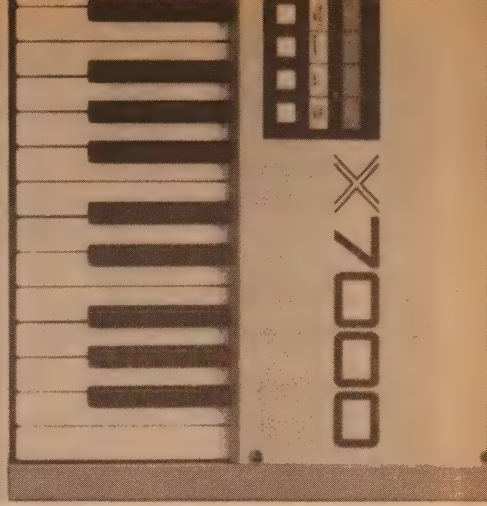

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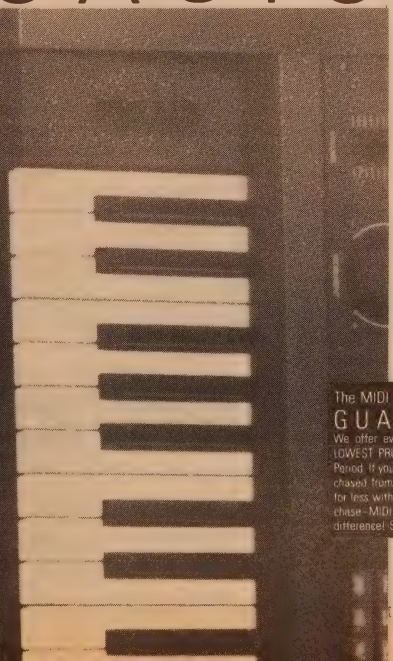

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Calendar of Events

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April 30, Thursday, 7:30 p.m.–Amiga Users Group meeting moderated by MIDI City's own David Kopatz.

May 9, Saturday, All Day–Special Passport Software Day with seminars by Lowell Levinger on Mac Mastertracks Pro Sequencer.

May 14, Thursday, 7:30 p.m.–FREE Fostex Signal Processing Seminar featuring everything you ever wanted to know about MIDI signal processing and more, with Tom Lubin.

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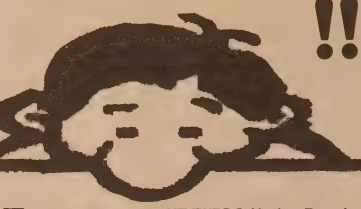

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Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

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916

The Vortex BBS. (916) 481-0194. 24 hours, 300/1200 baud. Online and RPG games, new ones start often. Message boards include private mail, Dr. Who, game hints, endless story, play by mail. Vote on movies and weekly survey. Articles and BBS listings. No Fee. Register first call. Pamela Lunsford, sysop.

"The Meeting Place" BBS 300/1200/2400 baud. 24 hours, no parity. AE line for public domain downloads. Apple, Commodore, IBM programs available for download. Numerous general files. No fees, all free. Call (916) 662-1838. Woodland, CA.

Family Radio Forum. (415) 562-5483. 300/1200/2400, N-8-1, 24 hours. Download, upload, message, conference on parenting. For teens, singles, etc. Christian TBBS for everybody. Sysop: Richard Yim (voice 415/568-6200). Also (301) 261-1423 (Annapolis, MD), (712) 246-2115 (Shenandoah, IA), (916) 481-6320 (Sacramento, CA), (201) 736-1859 (Newark, NJ), (813) 269-7957 (Okeechobee, FL).

SAC TIBBS. (916) 927-3012. 24 hrs, 300/ 1200 baud, Xmodem downloads, graphics, speech. Free. Sysop: Woody Large.

The Devil's Domain BBS. (916) 268-1127. 8-N-1, 24 hours, 300/1200/2400 baud. 4 sub-boards including main, music, jokes/war, and elite. Up/downloading. General files. Voting topics, online gaming. A BBS devoted to have fun! Sysop: Asmodeus.

ASSOCIATIONS

Computer Professionals for Social Responsibility. The LA chapter is interested in computer reliability and preventing nuclear war, the socially useful direction of computer research, and similar topics. They meet most third Wednesdays at 7:30 pm at varying locations. Contact Rodney Hoffman, P.O. Box 66038, Los Angeles, CA 90066, (213) 932-1913 for more information.

Organization of Professionals, Educators, and Novices (OPEN). Tutorials, random access period, feature presentation, public domain library, and CP/M literature are all part of the monthly meetings of Osborne owners/users and MS-DOS transportables. Club BBS and newsletter. Call Frank L. Christ at (213) 498-4186 for more information. Meetings at Learning Assistance Center, CSU Long Beach, 3rd Wednesdays, 7 pm.

The North Orange County Computer Club. This group is the largest and perhaps the oldest in the county. It is affiliated with a large number of special interest groups and offers something for just about every user. General meetings are usually the first Sunday of every month in the Hashinger Auditorium, Chapman College, Orange. For info, call (714) 998-8080.

The South Orange County Computer Club. A general computer club that meets the first Tuesday of every month at 3545 Harbor Blvd., Costa Mesa. Meetings begin at 7:00 P.M.

Valley Computer Club. Monthly meeting at 7 pm, first Wednesday of month in Burbank Board of Realtors Bldg., 2006 W. Magnolia Blvd., Burbank. All types of micros represented. Contact W.R. Robinson, 11850 Louise, Granada Hills, CA 91344, (818) 368-1383.

INTERFACE is a Los Angeles area gay and lesbian computer users' group for socializing and exchanging information. Meetings are open to all, regardless of level of experience. There are no dues or membership requirements. For additional information call Jim (213) 664-1127 or Pam (818) 368-0437.

San Diego Computer Society. Umbrella organization for over 40 Special Interest Groups (SIGs). Sponsors meetings, newsletters and annual computer fair. Meetings at Mesa College, 7250 Mesa College Drive, San Diego, 11:30-4, third Saturday each month. Contact Membership Chairman, P.O. Box 81444, San Diego 92138, (619) 549-3783. BBS (619) 549-3788.

Consolidated Computer Club. Meets first Fridays. 7 pm, Progressive Savings Bank, 12175 Ventura Blvd., Studio City, CA. Dues $25 yr. Send SASE to David Nussbaum, 11558 Riverside Dr., #207, North Hollywood, CA 91602.

Professional Typists/Word Processors Network to meet Sept. 9, 7 pm at Santa Monica Montessori School, 1619 20th St., Santa Monica. Network was formed for homebased typists and word processors to share information and referrals. Meetings consist of outside speaker and networking. $2 per meeting. Contact Fran Brevig, 6399 Wilshire Blvd. #1A, Los Angeles, 90048, (213) 651-1479.

Hughes Aircraft Computer Clubs. This club is for Hughes Aircraft employees only, but the BBS is open to everyone. Upload and download boards for Macintosh, IBM, Atari, Commodore, etc. Each board has its own public message service plus general message board. Contact Bud Grove, 21111 Dolores #146, Carson, CA 90745. BBS (213) 549-9640, 300/1200 baud, 24 hrs., 7 days.

Ventura Personal Computer User's Group. All MS-DOS and PC-DOS machines. Meetings 3rd Saturday 9 am-12 noon, Foster Library, 651 E. Main, Ventura. Contact Mike Regan, President, 301 Dana Point, Ventura, CA 93004, (805) 647-8273.

Micro User's Group — SFV Board of Realtors. Meetings 7232 Balboa Blvd., Van Nuys, 7 pm. third Thursday. Contact Mary Lou Williams, (818) 786-2110 for more information.

South Bay Computer Education Group. Supporting Appie, Atari, Commodore, IBM and compatibles, and TI99/4A. Meeting 2nd Wednesday of each month. Time 7 pm at 3675 Torrance Blvd., Suite 202, Torrance, CA 90503. Contact Jack Ward (213) 530-4879 or Judy Adams (213) 540-5010.

UCLA PC Users Group. IBM PC or compatibles owners welcome to join us on the 2nd Tuesday of the month, 7 pm. Public domain library , SIGs, BBS, seminars and newsletters. NPI Auditorium, UCLA, Westwood Plaza, Level C. For more information call (213) 473-6668.

Citizens Veto. For users with an interest in socio-economic issues who might want to try their equipment in working a model of a new approach. Primarily graphics and numbers, minimal text. Ewald O. Schlachter, (415)452-0151.

Pro*BUG—Professional Business Users' Group. Formerly Xerox Users Group. Meets 1095 Irvine Blvd., Tustin, 1st Saturday each month, 9 am. BBS (714) 543-3187, 300 baud, X-modem protocol. CP/M, PC, MS-DOS. Contact Allen Ashley, (714) 537-4608.

ICCA (Independent Computer Consultants of America. A nonprofit national association dedicated to the independent computer consultant. Its goals are to promote professionalism within the industry, increase awareness of ICCA to clients, and provide group benefits to members. Meets at Revere House, Tustin, 2nd Thursday, 6 pm. Contact Bill Creel, membership chairman, ICCA-OC, P.O. Box 3067, Santa Ana 92703, (714) 666-1981.

LAC-BUG (Learn About Computers—Beginner's Users Group. All computer owners and prospective owners eligible, ages 3 to adult. Educational materials and hands-on training included with membership. 24 hour telephone: (213) 372-8909. Mailing address: 6506 Arizona Avenue, Suite 127, Los Angeles, CA 90045.

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Apple Co-op. 290 SW 43rd, Renton, WA 98055. (201) 251-5222.

JUG (Jefferson State Computer Users Group). Many SIGs, newsletter. Dues $5.00 year, some SIGs additional. Contact JUG, P.O. Box 457, Gold Hill, OR 97525-0457.

MicroPro Users Group of America. National group with over 200 members worldwide. Dedicated to supporting MicroPro products, especially WordStar and InfoStar, for any hardware. c/o Procyon Associates, 140 Riverside Drive, New York, NY 10024. (212) 595-4811.

Golden Apple Club, Apple II and Macintosh. Contact Stefano Minotto, Golden Apple Club, Riviera Tiso da Camposanpiero, 26, 35100 Padua, Italy.

F.O.G. 15,000 member group supporting all CP/M users. Dues of $24.00/yr. include 60-80 pg. FOGHORN monthly's access to 270+ disk library, 40+ RCP/M systems, and back issues; and a technical support hotline. All meetings conducted by 140+ local groups. Gale P. Rhoades, P.O. Box 3474, Daly City, CA 94015, (415) 755-2000.

Getec s.r.l. Contact Silvio Esengrini, Via dei Guarneri Nr. 24,-20141 Milan, Italy. Phone: 39/2/5696502, 39/21 5694185.

Italtel S.p.a. Contact Michelangello Sala, C.Na, Castelletto, 20090 Settimo Milanese, Milan, Italy. Phone 39-2-4388-4288.

PLUG (The Plus/4 Users' Group). Dedicated solely to support of the Commodore Plus/4. No regular meetings, 200 members in US, Canada, Mexico, and Europe. Newsletter, public domain software library. P.O. Box 1001, Monterey, CA 93942.

KAPPA (Memphis Kaypro Users Group). Meetings at 2 pm, 1st Saturday of the month, Room 2, Jennings Hall. Contact Hugh Lamar, 5983 Macon Cove, Memphis, TN. (901) 377-4140.

The AppleWorks Users Group (TAWUG), c/o Regional Rep, 27421 Berenda Way, Hayward, CA 94544, (415) 887-7499.

FORTH Interest Group, International Office. P.O. Box 8231, San Jose, CA 95155. For further information call (408) 277-0668.

Apricot User Group (APRICUG). Box 98, Malverne, NY 11565.

Spellbinder Users' Group has an international newsletter with useful macros written by members, advice on new applications, news, and word-processing problem solving. All experience levels. California members welcome. Write P.O. Box 14, Newark, Notts, England NG24 4TP; telephone (0636) 77313; telecom Gold/Dialcom Mailbox 72: MAG95610.

AstroSoft for the IBM PC. Promotes the use of software in astronomy; disseminates astronomical information. P.O. Box 4451, Hayward, CA 94540-4451. (415) 278-8458.

National TeleVideo Users Group. Meets 7:30 pm, 3rd Thursday, 1170 Morse Ave., Sunnyvale. P.O. Box 22007, San Francisco, CA 94122. Call for info—David, (415) 753-1552.

Apple Fontrix Club. Monthly newsletter. P.O. Box 29857, Thornton, CO 80229-0857.

N.A.B.V.I.C.U. - The National Association of Blind and Visually Impaired Computer Users. The purpose of this group is to gather information that will assist the blind or visually impaired person in utilizing the enromous potential of computers. It supports **CompuHelp**, a menu driven database-bulletin board programmed for use by the blind and visually impaired. It is available 24 hours a day, 7-days a week, 300/1200 baud, 8 or 7 bits, even or no parity, 1 stop bit. (916) 786-3923. Compuhelp is also available on disks. For more info, contact Otto C. Haiungs, Chief Executive Officer, Sysop, at P.O. Box 1352, Roseville, CA 95661-1352. (916) 783-0364.

28 Barbary Lane. Meets at 121 13th Ave. East, Seattle, WA, Fridays 8:00 pm. Contact A. Madrigal, (206) 323-2828. BBS: (206) 323-2828.

Microenvironmental Information Consortium For Researchers Overseas. World Headquarters, 712 Avery Rd. W. Winlock, Washington 98596, USA. Washington phone: (206) 262-0159. California phone: (415) 524-9309. Micro on MCI mail, ECONET & WELL TELEX number 6502928733 via WUI.

USER GROUPS

AT&T

AT&T PC6300 Users' Group. Meetings at various locations—contact BBS for latest information. Or write Eric Levinson, P.O. Box 7364, Burbank, CA 91510. BBS (818) 954-0530, 300/1200, 8-N-1, 24 hours.

ORCA - Orange Riverside Counties AT&T 6300 UG. Meetings bimonthly, second Saturdays, 11:30 am, at 2144 Michelson Drive, Irvine. Contact Chuck Patten, 1220 Page Circle, Corona, CA 91720, (714) 851-0119, ext. 234.

ADAM

Adam Users of Southern California. Come and keep the ADAM going. We have access to some of the people who developed software for ADAM and we are going to create a base for tips, reviews, and a BBS. Get on line with ADAM. Meetings at Airport College Center, Sepulveda and Century, 4th Sunday, noon. Contact Harvey Klein, 1736 S. Bedford, LA, (213) 553-1062 or Paul Shecter, 5545 Lindley, Tarzana.

ALPHAGRAPHICS

Alphagraphics. Contact Stella or Jim Muller, 16425 Bernardo Ctr. Dr., San Diego, Ca. 92128, (619) 451-2250.

AMIGA

Amiga Users Group. A chance to meet and talk with other local Amiga users, review software, and exchange public domain software. Meetings 7:30 p.m., 1st Tuesday. Call Roy Wagner, (714) 892-5500 for more info.

Amiga Friends (AF). Contact Russ Kavanagh, (714) 898-2947. Call for more information, we'll see you there!

South (LA) County Amiga Users Group (SCAUG). A chance to meet and talk with other Amiga owners. Software reviews and public domain library. Meets at Mid Cities Bank in Bellflower on Lakewood Blvd., just south of 91 freeway, on 1st Tuesday at 7:30. Call Roy Wagner at (213) 832-3361 x4689 for more info.

San Fernando Valley Amiga User Group (SFVAUG). Meets 2nd Thursday of the month, 7-10 pm, at American Legion, 7338 Canby Ave., Reseda. We've got demos, SIGs, newsletter, PD library, disk of the month, ANSWERS. Bring your AMI, we have lots of room now! Contact Randy Likins, (818) 709-0932.

Bits & Pieces Amiga Group of Anaheim. Meets every Tuesday 6:30-10 pm at 1130-A N. Kraemer Blvd., Anaheim, CA 92806. C-64, C-128, Amiga. Public domain software, technical help, guest speakers, much more. Contact John Callaci or Mike Dalton (714) 630-8644/ 630-8711 for information.

Color America. Amiga SIG meets 1-3 pm on the third Saturday of the month at Rosemead Community Center, 3936 N. Muscatel Ave., Rosemead. For information contact Mark Randall, 2227 Canyon Rd., Arcadia, CA 91006, (818) 355-6111.

Amiga Tech Users Group #1. Meets 4th Tuesdays, 7 pm, University Union, Cal Poly Pomona. Contact Mark Randall, (818) 355-6111. Call for more information, we'll see you there!

Amiga Tech Users Group #2. Meets at Rosemead Community Center, 3936 N. Muscatel Ave., near Valley Blvd., Rosemead, 1 pm, 3rd Saturday of the month. Contact Mark Randall, (818) 355-6111. Call for more information, we'll see you there!

Inland Empire Amiga User Group (IEAUG). Meets 7 pm, 3rd Tuesday of the month, California School for the Deaf, 3044 Horace St., Riverside. Contact Paul Corbet (714) 684-6245. Call for more information, we'll see you there!

LA Amiga Users Group (LAAUG). Meets 3rd Wednesday, 7:30 pm, Veterans Memorial Auditorium, Culver and Overland Blvds., Culver City. Call (213) 387-3698 for more information. We'll see you there! BBS: (213) 559-7367.

West Side Amiga Users Group (WAUG). Meets 2nd Wednesday, 7:30 pm, John Adams Junior High School Cafeteria, 16th and Ocean Park Blvd., Santa Monica. Call (213) 451-0713, during the day, for more information. We'll see you there!

Apple/Valley Computer Club. Member interests include Apple, Amiga, IBM and others. Meetings are held on the 2nd Wednesday of each month, 7:30pm, at Valley Presbyterian Hospital, meeting room #3, 15107 Van Owen, Van Nuys, CA. For more info, contact Dr. William H. Trent, 6502 Kester Avenue, #7, Van Nuys, CA 91411, (818) 988-1752.

APPLE

Original Apple Corps. First Apple group ever. SIGs for AppleWorks, Telecommunications, Educators, Macintosh. Meetings in the Santa Monica Mall, second Sunday of the month, 3rd floor Community room, 12 noon. Contact Rich Rollons (213) 378-0707, or Fred Duffy, (213) 396-5515.

The Orange Apple Computer Club meets 9 am-12 pm the first Saturday of each month in the Science Hall at Orange Coast College, Costa Mesa. We have over 700 members, ranging from beginners to certified Apple developers, and a large Apple II public domain software library. There are several very active special interest groups which include Apple III, educators, Apple II, modem and investors. For further info call (714) 770-1865.

South Bay Apple III User Group. Over 85 Apple III users share information, programs, group purchases, product demos. Special interest groups meet 1st Tuesdays. General meetings on IIIrd Tuesdays at 7:30 p.m., UCLA Harbor General Hospital, Room III. Corner of Vermont and Carson, off 110 Fwy. Contact Gary Fortune, P.O. Box 432, Redondo Beach, CA 90277, (213) 316-7738.

Tri City Apple User's Group (Glendale, Burbank, Pasadena). New group formed from merger of Pasadena and Wabash groups. Meetings are scheduled the third Thursday of the month at Casa Colina Neurological Learning Center, 50 North Hill St., Pasadena at 7:30 pm. Contact Marie Kaden at (818) 846-6682. Dues $12./yr.

North San Diego Apple Club. Meets 1st Tuesday of each month at Meadowbrook Middle School, Meadowbrook Lane, Poway, 7 pm. Contact Bill Walker (619) 579-9649 or Chuck Newby (619) 566-0387, P.O. Box 75, Poway, CA 92064.

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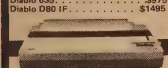

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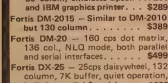

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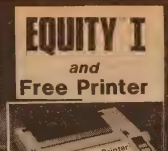

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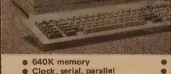

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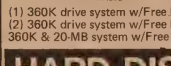

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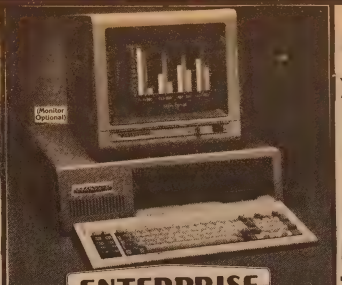

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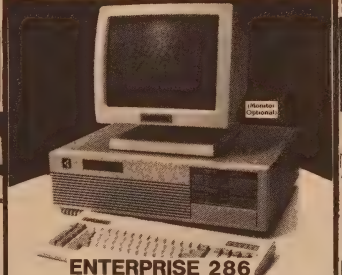

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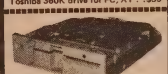

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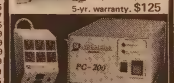

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Model 100, 6-plug surge & noise protector w/audio & Visual warning. $65
PC-200, 200-watt backup power supply with built-in surge protector . $279
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Taxan 121, 12" green, 1000x360 dots, TTL monochrome $145

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Samsung 12" TTL amber monitor . $99
Samsung SM12SFLAA2,12" flat screen TTL Amber monitor w/base. .$109
Taxan 122, 12" amber, 1000x360 dots, TTL monochrome $149

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SD Allers. Want to start Apple III user group in San Diego area. Contact James Fair, P.O. Box 1592, Lakeside 92040, (619) 561-3270.

Applejacks of the Inland Empire. Primarily for Apple II users. Meets first Wednesday and third Thursday of the month, 7-9 pm, at Norman Feldheym Central Library, 555 W. 6th St., San Bernardino. Contact Scott Zehm at (714)883-2234 for information, or write Applejacks, P.O. Box 23025, San Bernardino, CA 92406.

Appleholics Anonymous of Ventura County. Software library, club BBS, newsletter, hardware and software demos. 150 members. Meetings sometimes vary—call to verify (805) 482-3501, 484-2611, 659-5326, 985-9781. Meetings 3169 Telegraph Road, Ventura, 9:30 am, usually 2nd Saturday.

PVAUG-Pomona Valley Apple Users Group. Meetings are held on the 2nd and 4th Saturday of each month. For time and location, contact Victor Michael at(714) 629-0540.

Apple/Valley Computer Club. Member interests include Apple, Amiga, IBM and others. Meetings are held on the 2nd Wednesday of each month, 7:30pm, at Valley Presbyterian Hospital, meeting room #3, 15107 Van Owen, Van Nuys, CA. For more info, contact Dr. William H. Trent, 6502 Kester Avenue, #7, Van Nuys, CA 91411, (818) 988-1752.

APRICOT

Apricot Roundtable Group of Hapless Hackers (ARGHH!) An Apricot user's group is forming in east Long Beach, open to any Apricot, Xi, F1, F2, F10 or FP user, or anyone else with MS- or PC-DOS and 3½" disk drives. Phone Jim Bliss at (213) 425-6302. Meetings 7–10 pm, 3rd Wednesdays or at such other time as membership decides, at 7215 Killdee St., Long Beach, CA 90808.

ASHTON-TATE

dBUG-dBASE Users Group. For all levels of dBase users from beginners to expert. Meets 3rd Monday each month, 7-9 pm, Blue Cross Bldg., 21555 Oxnard, Woodland Hills. For more info contact Bruce Ascough, (818) 789-0723.

dBASE III SIG of UCLA PC Users Group. Meets once per month in Santa Monica—date varies. Contact Tom Rombouts, 1428 N. Curson #6, LA, CA 90046, (213) 874-7471.

ATARI

Atari Computer Association of Orange County (ACAOC). Join one of the biggest Atari user groups in Southern California. Monthly magazine, large public domain library, and club BBS. Dues $24.00/year, $18.00 for non-attending out-of-town members. Meetings at Golden West College, Room 131, Huntington Beach, 1 pm, fourth Sunday of the month (ST meeting same time and place on second Sunday). P.O. Box 9419, Fountain Valley, CA 92728 or (714) 838-3099 for more information.

West LA Atari Users Group. Come join fellow Atarians! Dues are $20.00/year. Newsletter, P/D library, ATR-Sig, discounts, guest speakers. Please call for directions to meeting room! If you're reading this, you belong with us. Meetings first Wednesday of the month, 7 pm, Paul Revere Jr. H.S., 1450 Allenford Dr., Brentwood. Call John Scheid, pres., for more information (213) 829-7239.

Los Angeles Atari Computer Enthusiasts (LAACE). Join Los Angeles' largest and oldest Atari Users' Group, now in our 6th year. Enjoy our monthly meetings and newsletter. Participate in our educational SIG (Special Interest Groups) seminars and meetings. Learn how to get the most out of your Atari; access our hundreds of public domain programs; benefit from the help and experience available from our experts. Come as our guest on the 1st Tuesdays of the month (2nd Tues if holiday occurs in 1st week) at 7:00 pm at Granada Hills High School, 10535 Zelzah Ave., Granada Hills, CA. For full benefits, including member access to our 10 meg BBS, dues are $20/yr ($25 for entire family). Write P.O. Box 7752, Van Nuys, CA 91409 (include your phone number) for additional information.

Santa Clarita Valley Atari Computer Enthusiasts (SCV-ACE) invite you to join us. Meetings are the first Thursday every month from 7 to 9 pm at the Moose Lodge, 18000 W. Sierra Hwy., (1/2 mile north of Soledad Canyon Road), Canyon Country. For info call Bob at (805) 259-6540.

Atari Computer Enthusiasts Network (ACENET). Umbrella group representing many Southern California Atari groups. If you can't locate a user group in your area, contact John Tarpinian at 6055 Cahuenga Blvd., #2, North Hollywood, CA 91606, (818) 760-1831.

Hooked on Atari Computer Keyboard Society (HACKS). Meetings on the first Saturday of the month in the Burbank area. For more information contact John Tarpinian, 6055 Cahuenga Blvd., #2, North Hollywood, CA 91606, (818) 760-1831.

AA-Atari Users Group. Meets at Upland Public Library, 450 N. Euclid Ave. Atari 400, 800, XL/XE group meets second Tuesday, 6-9 pm. Call Juan Valdes, (714) 980-6841 for more info. 520/1040ST group meets fourth Thursday 6-9 pm. Call Jay McCarthy, (714) 829-8722 for more information.

MAST—Mid-Cities Atari ST. Meetings at 9025 E. Artesia Blvd., Bellflower, first Sunday, 7 pm. Contact Jane Hughes, 9701 E. Artesia Blvd., Bellflower, (213) 867-0626.

South Bay Atari Computer Enthusiasts (S.B.A.C.E.). Meets 2nd Tuesdays, 7:30 pm, VFW Hall, 1865 Lomita Blvd., Lomita. Meetings consist of guest speakers from software and hardware suppliers, demos by members, q & a periods, along with current Atari rumors. Newsletter, published 6 times a year, included with $20/yr membership fee. Write S.B.A.C.E., P.O. Box 83668, Los Angeles, CA 90083, for more information, or call Dick Reaser, (213) 645-7063.

Pasadena Area Local Atari Computer Enthusiasts (PALACE). Meets monthly in the Monrovia area on the third Tuesday of the month. Contact Chris Roberts, sysop of PALACE BBS, (818) 359-1697.

AUTOCAD

AutoCAD Los Angeles Users Group. Meetings fourth Thursday of the month (except November and December—Meetings Nov. 20 and Dec. 18), Church of Religious Science, 260 North Pass Ave, Burbank. Contact Tesfaye Abagaz, (818) 843-5770 (work).

COMMODORE

San Diego Commodore Users Group. Meets third Wednesday, 7 pm, 2557 3rd Ave. (Women's Club), San Diego. For all Commodore machines. Contact Jane Campbell, (619) 584-2872 for more information, or write: P.O. Box 86531, San Diego, CA 92138-6531.

San Fernando Valley Commodore Users Group. Meets second Wednesday of the month at Patrick Henry Junior High on Louise Ave. between Devonshire and San Jose in Granada Hills, near 118/405 freeway interchange. Contact Tom Lynch, 21208 Nashville, Chatsworth, CA 91311, (818) 709-4736.

San Luis Obispo Commodore Computer Club 1766 9th St., Los Osos, CA 93402. (805) 528-7475 BBS.

The Commodore Users Group - San Juan Capistrano. This group of C64 users meets the second Saturday of every month from 9:00 am till 12:00 at Great American Federal Savings and Loan, 32232 Camino Capo, San Juan Capistrano. For info call 496-5745.

Orange County Commodore Technical User's Group C-TUG. Orange County's Commodore user group. Club newsletter, two 300/1200 baud BBSs, door prizes, SIGs in Comal, DOS protection, data bases, wpros, and BASIC. Custom software and ROM chips, and just plain good times. Meetings at Mercury Savings and Loan, 4th and Newport, Tustin, fourth Sunday of the month, 10:30 am. Contact Ellis L. Higham, corresponding secretary, P.O. Box 8342, Orange, CA 92664, (714) 554-9222.

Hollywood User Group (HUG) for Commodore computers. Meets 2nd Saturday of the month at Plummer Park, Conference Room, 7377 Santa Monica Blvd., West LA at 12 noon. Contact HUG BBS (213) 874-8256 (24 hrs) or write HUG, P.O. Box 38313, Hollywood, CA 90038.

Southern California 64 Users Group. Learn more about your Commodore 64. Extensive public domain disk library. Meet at Mid Cities Bank in Gemco shopping center on Bellflower, just south of 91 Freeway, 7 pm, 3rd Tuesday of every month. Contact Joe Allain, 3852 Riverton, Studio City, CA 91604, (818) 985-2647.

C-128 West UG. User group for owners of the Commodore C128, from beginner to advanced; PD software available. New group still assessing the needs and interests of members. Intend to network with other user groups on C128 software. Meetings 2nd Tuesday, 7:15 pm, McKinley School in Santa Monica, Santa Monica Blvd. and Chelsea. Contact Don Campbell (213) 828-9308.

Inland Empire IBM/C64 User Group. Major subjects are local area networks, small business software, data communications. Send SASE for free newsletter with dates and software library. Contact Winfried Hofacker, P.O. Box 988, Chino Ca 91708-0988.

Commodore Creations Users Group (CCUG). We offer library, newsletter, and other services; upcoming BBS; soon to be member of Commodore World. Meets 2nd or 3rd Sunday of each month 2-4 pm. Membership dues $26 per year. Call or write for info: Brian R. Klotz, 1135 Coronet Ave., Pasadena, CA 91107 (818) 351-8198.

Back-Country Commodore Club. Meets first Thursday 7 pm, Ramona Lutheran Church on 14th St. Check us out for relaxed, informative group discussions. We're here to help those with problems and to promote better uses of Commodore 64s, 128s, and Amigas. Contact Gerry White at (619) 789-3209, 511 14th St. #D-13/P.O. Box 373, Ramona, CA 92065. Meetings at 617 16th St., Ramona, CA 92065, 7 pm, 1st Thursday each month.

General Dynamics Commodore Computer Club. Meets third Tuesdays, 4:30 pm, Convair Rec. Assn. room C. Commodore 64 and 128 only. Contact Al Wilson, (619) 429-6790 for information.

C.U.B.E. Commodore Users, Buffs, and Enthusiasts meet first and third Mondays of each month, 7:30 pm, East Side Christian Church, 668 Obispo, Long Beach. Contact Lynn Cothern, 2005 Palo Verde #163, Long Beach, (213) 421-1041 modem.

Com-Pacs. Meetings and/or copies of public domain software and discussion of problems. New computer C64/128 technologies. Sales and swaps of equipment. Meetings at 2354 Elmgrove St. Los Angeles, CA, Saturdays, 3 pm. Contact Lon Damiani, (213) 222-2277.

PLUG (The Plus/4 Users' Group). Dedicated solely to support of the Commodore Plus/4. No regular meetings, 200 members in US, Canada, Mexico, and Europe. Newsletter, public domain software library. P.O. Box 1001, Monterey, CA 93942.

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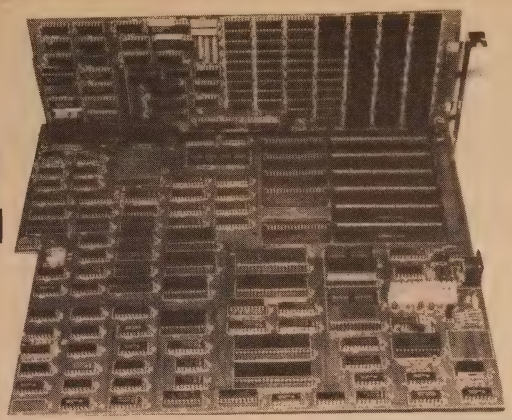

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Pacific Computer Club (Commodore). Meetings 391 S. Madison, Pasadena, 2nd Thursday, 7 pm. Contact Norman Sauppe, (818) 792-9840.

FCUG/SixtyFourum. PD library, newlsetter, meeting 3rd Saturdays, 8:30 am. Contact George Bearden, P.O. Box 16098, Fresno, CA 93755, (209) 291-7053. BBS (209) 431-6288.

Central Coast Commodore Users Group. Meets 3rd Tuesday of each month. Contact Gilbert Vela, 4237 Plumeria Ct., Santa Maria, CA 93455. CCCUG BBS (805) 934-2216, 24 hrs/7 days, 300 baud, Punter BBS protocol for downloads.

Diamond Bar User Group (DBUG). The Diamond Bar User Group is dedicated to the Commodore line of computers, C64, C128, and the Amiga. The club has a large public domain software library base, especially Commodore CP/M. Free raffles, technical discussions, software demonstrations, and the monthly freebie disk can be found at most any meeting. Meetings 2nd and 4th Wednesdays, 7 pm, Diamond Bar Library, 1061 S. Grand Ave., Diamond Bar, CA. Contact David Dietzel, (714) 947-1882 for more information.

South Orange County Commodore Programmers and Users (CPU). Meetings at Great American Savings, 23688 El Toro Road, El Toro, third Saturdays, 9 am. Contact Don Gribble, President, 25401 Champlain Rd., Laguna Hills, CA 92653, (714) 830-2430 or (714) 855-8320.

West Orange County Commodore User Group. Meetings 1st Sundays, 1 pm, Mercury Savings, Buena Park, corner of Valley View and Lincoln. Write for info: P.O. Box 6441, Buena Park, CA 90622; or call Mark Stanford, (714) 772-4182 or Art Collins (714) 821-0195.

Bits & Pieces Amiga Group of Anaheim. Meets every Tues-day 6:30-10 pm at 1130-A N. Kraemer Blvd., Anaheim, CA 92806. C-64, C-128, Amiga. Public domain software, technical help, guest speakers, much more. Contact John Calaci or Mike Dalton (714) 630-8644/630-8711 for information.

The Pasadena Commodore Computer Club meets the first and third Wednesday of the month at 7 pm in the Circadian Room of the cafeteria on the campus of Pasadena City Col-lege, SE corner of Colorado and Hill. For more information write to PCCC, P.O. Box 1163, Arcadia, CA 91006, or call (818) 447-2212 after 2:30 Pacific time.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 7:00-10:00 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

CORDATA

Cordata Users Group. Meets 2nd Fridays, 7 pm. 20630 Lassen St., Chatsworth. Contact Alicia Fahey, (818) 709-6202 for information.

DEC

DECUS Inland Empire PC-LUG Digital Equipment Computer Users Society. Free to all DEC users; Decmates, Rainbows, Professionals; P/D software; guest speakers; software /applications assistance available; FIDO bulletin board. Meets Cal Poly-Pomona campus, Library Bldg 15, Room 12, 7:30 pm 3rd Tuesday of each month. Contact Jan Snyder, 380 Verona St., Upland, CA 91786, (714) 620-7511 ext. 4376.

DECUS Southern California PC-LUG. Digital Equipment Computer Users Society. Free to all DEC users; Decmates, Rainbows, Professionals; P/D software; guest speakers; software/applications assistance available; FIDO bulletin board. Meets 10:30 am, 1st Saturday of the month, Press Telegram Bldg., 3rd Floor, 604 Pine Ave., Long Beach, CA. Contact Bill Davis, 1457 W. 219th St., Torrance, CA 90501. (213) 827-4600.

DECUS Rainbow Pacific PC-LUG Digital Equipment Computer Users Society. Free to all DEC users; Decmates, Rainbows, Professionals; P/D software; guest speakers; software /applications assistance available; FIDO bulletin board. Meetings at Digital Equipment Corporation, 6101 W. Centinela Ave., Culver City, CA 90230, 7 pm, 2nd Wednesday of each month. Contact Don Braums, 3312 Summertime Lane, Culver City, CA 90230, (213) 202-1784.

EASYBUSINESS

Easybusiness Systems Users Group. CPAs, Consultants, and other business people interested in Computer Associates Easybusiness Systems' Accounting Software. For information, contact Gary Robinson (213) 398-6544.

EPSON

Cursor Club Epson 402 W. Arrow Highway, Suite 6, San Dimas, CA 91773. (714) 559-8361, Bulletin Board: (714) 592-6316.

San Fernando Valley Epson User Group. Meetings at Fallbrook Square Community Room "The Meeting Place" off the Food Court in the new Fallbrook Mall, 6633 Fallbrook Ave., Canoga Park, between Victory and Vanowen. Meets 3rd Wednesday of each month at 7 pm. Contact Pat Denslow, (818) 881-4029 for information.

Epson Users Group of Orange County. 6075 Jeffrey Mark St., Cypress, CA 90630, (213) 414-4817.

Epson Users of San Diego. P.O. Box 87448, San Diego, CA 92138, (619) 560-7604.

High Desert Epson Users Group. 933 Cottonwood Drive, Barstow, CA 92311, (619) 256-3541.

PSC/QX. 2934 Wilshire Blvd., Santa Monica, CA 90403, (213) 453-4535, Bulletin Board: (213) 474-4952.

South Bay Epson Users Group. 1115 Cerise Avenue, Torrance, CA 90503, (213) 328-9916, Bulletin Board: (213) 618-1940.

Epson Computer Club of America. Monthly meeting 2nd Saturday of the month at 10 am, Mercury Savings and Loan, Irvine Blvd. one block east of Newport Ave. Messages Epson West Bulletin Board (714) 630-7104 User area B:15. Monthly newsletter "The Help Key." Contact Roy Boorman, 4021 Winterhaven St., Yorba Linda CA 92686, (714) 524-9483.

FORTH

FORTH Interest Group, Los Angeles Chapter. Meets 4th Saturday, 10 am, Hawthorne Public Library, 12700 S. Grevillea, Hawthorne. Contact Phil Wasson (213) 649-1428.

FORTH Interest Group, Orange County Chapter. Meets 1st and 4th Wednesdays, 7 pm. Call Noshir Jesung for info. (714) 842-3032.

FORTH Interest Group, San Diego Chapter. Meets weekly, Thurs., 12 noon, contact Guy Kelly (619) 268-3100 ext. 4784.

HEATH

Los Angeles HUG (Heath Users Group). A support group for users of Heath/Zenith computers. Monthly speakers, software library, information exchange, newsletter. Meetings open to visitors. Meetings at 2309 S. Flower St., LA 90007, first Thursday of each month at 7 pm. Call Tom Davis for information at (213) 462-2642.

LUV-A-HUG Heath /Zenith User's Group. Meets 2nd Thursday of each month, 7pm, at Heath /Zenith Computers and Electronics, 22504 Ventura Blvd. Woodland Hills, CA 91364. A users group dedicated mainly to the Heath/Zenith line of computers, but anyone interested in computing is welcome. Dues are $12/yr, which includes group newsletter and copying of public-domain software from extensive library of PC-, Z-100, and CP/M compatible software. For more info contact John Rotondi, between 10:00 am and 6:00 pm at (213) 874-9344. BBS (818) 772-0384.

HEWLETT-PACKARD

Club of Hewlett - Packard Hand-Held Users (CHHU). HP handheld users worldwide support CHHU as a noncommercial, open, independent club dedicated to applying today's machines and making a contribution to the true personal computer of tomorrow. Send SASE for more info to Richard J. Nelson, 2545 W. Camden Place, Santa Ana, CA 92704, or call (714) 754-7757 for meeting directions.

LA-SCRUG. Hewlett - Packard Series 100 business computer user group. Demonstrations and seminars on HP software and equipment. Meetings at 5161 Lankershim Blvd., North Hollywood, 7-9 pm, 2nd or 3rd Thursday of the month. Contact Dave Mark, P.O. Box 60975, Pasadena, CA 91106, (818) 794-4969.

IBM

The Greater South Bay IBM PC Users Association. Any L.A. area PC or compatible owners are welcome to attend these meetings at the TRW cafeteria on Compton Blvd. Meeting time is 7:00 pm on the third Thursday of each month. For info call (213) 398-8153.

Technical Users Group (TUG-NET). For CP/M & MS-DOS PC users. Meets on the first Thursday of each month at 7:00 pm. Valley Plaza Park, Community Room, 12240 Archwood St., North Hollywood, CA. Contact Mike Faith - (818) 994-6567. DOS SIG meets 3rd Mondays, 7 pm, Sears S&L, Van Nuys. Call (818) 701-0512 for information. BBS (818) 882-6045.

UCLA PC Users Group. IBM PC or compatibles owners welcome to join us on the 2nd Tuesday of the month, 7 pm. Public domain library , SIGs, BBS, seminars and newsletters. NPI Auditorium, UCLA, Westwood Plaza, Level C. For more information call (213) 473-6668.

Pasadena IBM User's Group. Meets 3rd Wednesday of each month at Cal Tech, Steele Building, Room 102. For more info send SASE to Steve Bass, 711 E. Walnut Street #306, Pasadena, CA 91101, (818) 795-2300.

Inland Empire IBM/C64 User Group. Major subjects are local area networks, small business software, data communications. Send SASE for free newsletter with dates and software library. Contact Winfried Hofacker, P.O. Box 988, Chino Ca 91708-0988.

The Foothill Computer Club. An IBM-PC users group. CCCUG — Crescenta-Canada-Compatible Users Group. P.O. Box 1265, La Canada, CA 91011, (818) 790-6672. Meetings 1st Wednesday of the month at 6:30 pm at the Glendale Federal Bank, 2350 Honolulu, Montrose, CA. For newsletter send SASE to above address.

NOCCC Lotus & Business SIG. Subgroup of North Orange County Computer Club. Meets first Sundays at Chapman College in Orange, CA, 11:15 am. Lotus 1-2-3 and business application demos, speakers. Call to verify dates, address: Vance Joachim, (714) 998-8080. P.O. Box 3616, Orange, CA 92665.

The Riverside IBM Computer Club. Meetings at Computerland Riverside, Monday 7 pm. We specialize in software demonstrations, sharing of public domain programs, and mutual problem solving activities. Contact Jimmie E. Heidecke, (714) 685-5407 for info.

Orange Coast IBM PC User Group. A not-for-profit organization open to anyone with or considering the purchase of an IBM PC or compatible computer. Monthly meetings, usually on the last Saturday of the month, consist of one or two guest speakers, a short business session and a period for random access. OCIPUG has public domain and user supported software, a monthly newsletter and a bulletin board. Membership is $20 per year. Meetings at Orange Coast College, Science Hall, Costa Mesa, last Saturday of the month, 9 am–12 noon. Contact Tom Sutro, P.O. Box 6100-211, Costa Mesa, CA 92628, (714) 850-0474.

Valley Computer Club. IBM PC Users Group meets first Wednesday each month. The group is part of Southern California's original computer club. Its purpose is to distribute public domain software and exchange info on the PC. Meetings at 2006 W. Magnolia Blvd., Burbank, 7 pm. Contact Sy Lieberman, (818) 981-9593.

Kern Independent PC User Group (KIPUG). Meets the 2nd Thursday of each month beginning at 7 pm at the County Superintendent of Schools Boardroom, 5801 Sundale Ave., Bakersfield. Contact Jim Harrer, P.O. Box 2780, Bakersfield, CA 93303, (805) 395-0223.

Bits & Pieces IBM of Orange County. Meets at 1130-A N. Kraemer Blvd., Anaheim, every Saturday at 10 am. Call John, (714) 630-8644 for more information.

Ventura Personal Computer User's Group. All MS-DOS and PC-DOS machines. Meetings 3rd Saturday 9 am-12 noon, Foster Library, 651 E. Main, Ventura. contact Mike Regan, President, 301 Dana Point, Ventura, CA 93004, (805) 647-8273.

Thousand Oaks Personal Computer Club (TOPCC). Meets fourth Thursday, except November and December (3rd Thursday), at CAL. Lutheran Univ., 60 W. Olson Road, Thousand Oaks. 6:30 pm beginners, 7:30 regulars. Group is five years old and has approximately 150 members. Contact Bob Tracy, (805) 482-7092 for more information. BBS: (805) 499-8378.

Southwest PC Users Group. All computer users are welcome. Meetings 3rd Saturday of each month; call for meeting place. Christine Tripp, (213) 935-4105.

Tulare County PC. Meetings at Genesis Computers, 3rd Thursday each month. Call Roger Jenan, (209) 733-8204 for information.

Claremont Computer Club. This club is for any interested IBM PC or compatible users. Meetings start at 7:30 pm on the 3rd Monday of the month. Call (714) 626-2268 for meeting location and information.

Apple/Valley Computer Club. Member interests include Apple, Amiga, IBM and others. Meetings are held on the 2nd Wednesday of each month, 7:30pm, at Valley Presbyterian Hospital, meeting room #3, 15107 Van Owen, Van Nuys, CA. For more info, contact Dr. William H. Trent, 6502 Kester Avenue, #7, Van Nuys, CA 91411, (818) 988-1752.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 7:00–10:00 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

KAYPRO

Lakewood/Long Beach KUG is a group of Kaypro computer owners dedicated to helping each other solve problems and share information and public domain software. The meeting is open to all. Meetings at Midcities Bank, 9025 Artesia, Bellflower, CA, 2nd Wednesday of each month; 7 p.m. Contact Melvin Pasley, 4566 Shadeway Rd., Lakewood, CA 90713, (213) 421-3094.

Kaypro UG, 3134 N. Palm Shields, Fresno, CA 93704.

K-West, Orange County Kaypro users group. Meetings 2nd Monday of the month, Glendale Federal Savings, 100 Newport Center Drive, Newport Beach.

Club 16. Meets once a month in Costa Mesa at 2790 Harbor Blvd., (CBS Store) to share knowledge of the 16 bit world. It is a small group so that everyone can get to know each other and share. Large public domain library. Contact Peggy Lloyd, (714) 645-9868 for information.

LA Kaypro Users' Group. Primarily CP/M users, all brands welcome. Meets 3rd Tuesday, 6:30-9:30, Beverly Hills High School, 241 Moreno Ave., 3rd floor cafeteria, near Olympic and Spalding. Contact Allyn Franklin or Barry Cole, (213) 278-3748 or (213) 390-3851 after 11 am please.

Kayos Kaypro Users Group. Kayos Kaypro User Group invites Kaypro and CP/M users to meetings at TRW in Redondo Beach, 6:30 pm, third Monday of the month. (213) 379-8339 for details.

TUG-NET Kaypro and Osborne SIG meets 4th Thursdays, 7 pm, Central Savings, 4464 Van Nuys Blvd., Sherman Oaks. Call (818) 882-1693 for information.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 7:00–10:00 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

LEADING EDGE

Leading Edge User's Group. A user's group of predominantly Leading Edge users and other similar machines with high clock speed. Public domain software, demos of software/hardware. No fees. Meetings 7:00 pm, 2nd Wednesday of the month, 12792 Valley View, Suite F, Garden Grove, Contact Bruce Fruchter, (714) 891-2001 for information.

LOTUS

Los Angeles Lotus Users Group. Demonstrations, problem-solving, third-party applications, etc. For Lotus 1-2-3 and Symphony. Informal and fun. 7–9 pm, Burbank church of Religious Science, 3rd Thursday each month. Take 134E to Pass, N. 1 block. Call Don Roark, President, (818) 905-1441 for information.

MACINTOSH

Los Angeles Macintosh Group (LAMG) Be a part of the best Mac group in So. Calif. Many SIG and local groups to choose from including desktop publishing, OMNI, business, education and more. Monthly main meeting at McKinley Elementary School, Santa Monica Blvd. at Cloverfield, Santa Monica. Membership $25 annually includes 12 issues of MacDigest newsletter, access to public domain library, discounts at local stores. Call Eric Anderson, (213) 278-LAMG for information.

Ventura County Macintosh Club Mac and Lisa users invited. Membership $21/yr.; newsletter, software library, discussions and ideas. P.O. Box 7754, Oxnard, CA 93031, (805) 983-1610, (805) 499-2824.

Mac Valley Users Group. For $20/yr. membership fee you too can enjoy meetings chock full of software/hardware presentations, public domain software library, Mac articles index, software and accessory raffles, and help hotline. Broad range of users, very friendly to novices. Meetings at Burbank High School Cafeteria, Burbank Blvd. at 3rd St., Burbank, CA, third Tuesday of the month, 7:30 p.m. Contact Ruth Stever, P.O. Box 4297, Burbank, Ca 91503, (818) 848-1277.

MAC-HACers. Macintosh computer club for Hughes Aircraft employees only. Meetings 3rd Wed. each month, H.E.S.E.A. Club House, 1216 Imperial, El Segundo, CA 90745, across from LAX, 5 pm. Contact Bud Grove, (213) 606-2212, 5am-3pm, (213) 549-9664.

Orange Apple Macintosh Group. The Macintosh Meeting of the Orange Apple Computer Club meets 1 pm-4 pm the 1st Saturday of each month in the Science Hall at Orange Coast College, Costa Mesa. We have the best of the public domain software for the Mac, and several fun special interest groups which include Fast Start, Mac Modem, and Deciphering Mac Public Domain. For further info, call (714) 770-1865.

Mac Orange. Monthly newsletter, special intrest groups, monthly meetings, $20 annual dues. Meetings 3rd Wednesday of each month, 7:30 pm, Johnson Center, Santa Ana College, Bristol at 17th. Novices SIG meets at 7:00. For info write Box 1830, Santa Ana, CA 92701, or call (714) 542-9753.

MacBuddhist. Learn about computer assisted dharma study and application to daily living. Network of on-line Bodhisattvas sharing material crossing sectarian lines. Monthly meetings, last Saturday of the month. Contact secretary, College of Buddhist Studies, 933 South New Hampshire, Los Angeles, CA (213) 739-1270.

Corporate User Groups SIG of Los Angeles Macintosh User Group establishes communication between leaders of Macintosh User Groups of companies in the greater Los Angeles area. The main purpose of the group is to share information on Macintosh use in corporations. It also consults company recreation clubs in starting and supporting company Macintosh groups. Contact Charles Shipp, (213) 970-6300w, (213) 833-9186h, for more information.

San Gabriel Valley Mac Users Group. Meets once a month to disseminate information about the Macintosh. Meetings are held on the first Thursday of every month at the City of Hope in Duarte, 7:30 pm in cafeteria complex Room B. The SGVMUG has special interest groups such as Power Users' SIG and a Novice SIG. Public domain library, monthly newsletter. Membership is $20 per year. Contact Frank Chavez on the 24 hour information line (213) MUG-ICON, or write SGVMUG, P.O. Box 792, Sierra Madre, CA 91024.

Macintosh Computer Society. General meeting on the 1st Thursday of each month at 23 Civic Center Drive, Northwest corner of Santa Ana Blvd. and Rose Street. Meeting time 7:30 pm. Membership $20.00 per year. FREE help / education meetings on the 2nd and 3rd Tuesday of each month at Progressive Savings 19900 Beach Blvd., Huntington Beach, 7:15 pm. Our huge library contains the best of Public Domain software for all the Mac family. For further info, call Robert at (714) 840-1238 or mail to 17661 Falkirk Lane, Huntington Beach, CA 92649.

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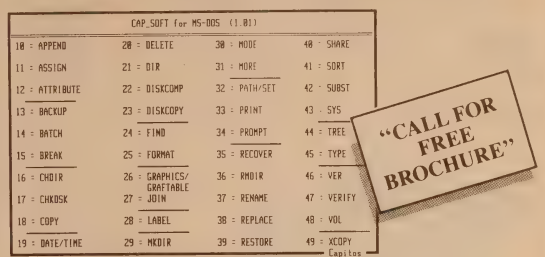

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The July issue of *MicroTimes* explores the new musical frontiers opened up by the personal computer and the MIDI interface. Technophile/rocker Todd Rundgren holds forth on computers in the music world, their strengths and limitations, as well as his latest ventures into computer-generated graphics and video. We'll also have articles on Macintosh in the recording studio, applications for the individual musician, and a visit with leading music software publisher Passport Designs.

In a related piece, we'll examine software and hardware products that let you create your own music videos on Amiga, using state-of-the-art sound and graphics capabilities.

Also, Birrell Walsh will present his favorite "thought-assister" programs for the IBM, Sharon Rufener will discuss the fine points of effective graphics presentations using *Show Partner*, and Charles Seiter will offer for your consideration *Trapese*, a spreadsheet-with-a-difference for Macintosh.

The July *MicroTimes* will be available at a location near you May 29. Don't miss it!

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MORROW

West LA Morrow User's Group /The Morrow Minority. 40 dedicated members, with special emphasis in WP; PD library. No dues, but $1 at door to pay for refreshments. Some classes and informal newsletter. If new, call to reserve space: Dr. Bernice Ennis, (213) 276-9096, 1833 Franklin Canyon Dr., Beverly Hills, CA. Meetings 2nd Wednesday of the month.

LA Morrow User Group. Meets 3rd Thursday each month, North Hollywood Recreation Center, 11430 Chandler Blvd., North Hollywood. Contact Jack Byers, (818) 347-7283 for information.

NEC

Orange County NEC Users Group (OCNUG). Dedicated to NEC-APC computers, CP/M-86 & MS-DOS. Always room for any experience level. Meets 3 pm, third Saturday of the month. 6642 Lenore, Garden Grove, CA 92645. Call John Bingel at (714) 897-7656 for more info.

The Los Angeles Area NEC APC Users Group meets on the first Saturday of each month at 3 pm at the I/O Interface Computer Mart, 6241 West 89th St., Los Angeles, CA 90045. Telephone (213) 410-9824. There is no meeting in January, and occasionally a meeting may be cancelled or postponed, so it is best to call before coming.

OLIVETTI

Olivetti PC User Group forming. Send SASE to Stan Cory, 29500 Heathercliff Rd. #86, Malibu, CA 90265, or call (213) 457-3879.

OMNIS 3

Omnis 3 User Group. Meets every third Wednesday of the month at Grant St. Elementary School in the auditorium. Address is 2368 Pearl St., Santa Monica. Time is 7:30 pm. The use of Omnis3 and Omnis 3+ in data processing information management systems is covered, from setup to advanced features. Expert and novice welcome. Call Zachary Sempers at (818) 701-1355 for information.

OSBORNE

TUG-NET Kaypro and Osborne SIG meets 4th Thursdays, 7 pm, Central Savings, 4464 Van Nuys Blvd., Sherman Oaks. BBS (818) 882-6045, 8-N-1, 1200 baud, 24 hours.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 7:00–10:00 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

Osborne National Users Group meets 2nd Fri./mo. at 7:30 pm at Wizard of Oz, 20630 Lassen St., Chatsworth, CA 91311. Contact Art Schlefstein, (818) 709-6969.

PARADOX

Southern California Paradox Users Group. Anyone with an interest in the relational database Paradox please send an SASE to Brian Smith, 350 Palos Verdes Blvd., Redondo Beach, CA 90277. Meetings are being held in LA and Orange County.

RADIO SHACK TRS

South Bay Color Computer Club TRS-80, TDP-100, Dragon. Meets third Friday of the month at Mercury Savings, 22939 Hawthorne Blvd., Torrance. Info: Andrew Corlett, 1435 W. 172nd St., Gardena, CA 90247. (213) 538-8394.

OCTUG-Orange County TRS-80 Users Group. Meets the 3rd Sunday of each month in the community room at "The City Shopping Center" in Orange. The room is near the green entrance of the mall (N.E. corner). MS-DOS SIG (Special Interest Group) begins at 11:30 am. General meeting begins at 1:30 pm. Devoted to the Tandy line of computers and compatibles. Come on down and see what it's like. For more info, contact Franco Collino, (714) 750-0887.

San Gabriel Valley TRS-80 Users Group. Supporting users of TRS-80 and Tandy computers. Meets 2nd Friday of each month at Arcadia Park Senior Citizens Center at 7:30 p.m. Monthly newsletter, various SIGs, lotsa fun & info. Contact Dan Dreselhaus. (818) 914-5831 days.

VTUG (Valley TRS-80 User Group). Devoted to users of TRS-80 Model I, II, 4, 4P, LNN or MAX-80. Speakers, presentations, raffle drawing, refreshments. No admission or membership fee, new members welcome. Meetings at Glendale Federal Savings, 7129 Topanga Canyon Blvd., Canoga Park, 3rd Thurs., 7:30 pm. Contact Fred Blechman, (818) 346-7024.

VTHGValley TRS80 Hacker's Group. Programming and problem solving for Models 1, 3, and 4. No vendors, no machines. No dues. No sweat. Bring a blank disk and get NEW public domain software. Meetings 1st Fridays, 7:30 pm, Valley Plaza Park Auditorium, 12240 Archwood St., North Hollywood. Call Eric Bagai at (818) 982-0467 for more information.

Tandy 1000 (The MUG) Meets fourth Wednesdays, 7 pm, 9027 E. Artesia, Bellflower, CA. Contact Dick Sherwood, 4014 Centralia St., Lakewood, 90712, (213) 421-4014. The MUG RBBS (213) 425-0022, members only.

Color America. Radio Shack color Computer SIG meets 2:30-5 pm on the third Saturday of the month at Rosemead Community Center, 3936 N. Muscatel Ave., Rosemead. Contact Mark Randall, 2227 Canyon Rd., Arcadia, CA 91006, (818) 355-6111.

The Los Angeles-Wilshire Color Computer Users' Group, a TRS-80 Color Computer Users' Group, meets the 2nd Saturday of each month, 12:30 pm-5:30 pm in the Felipe de Neve library's community room, 2820 W. 6th, Los Angeles. Call Milton, (213) 558-4909.

United Computer Federation-San Fernando Valley Chapter. Meets the fourth Tuesday of each month at the Tarzana Radio Shack, 18545 Ventura Blvd., 1/2 block west of Reseda Blvd. Meeting starts at 7:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy Color Computer user groups. For more information phone Pete Ellison, chapter president, at (818) 840-8902.

United Computer Federation-Los Angeles Chapter. Meets the fourth Thursday of each month at the Church of Christ recreational building, corner of Clark and Park streets, just off the 91 freeway in Bellflower. Meeting starts at 7:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy Color Computer user groups. For more information phone Gary James, chapter president, at (213) 420-7632.

United Computer Federation-Orange County Chapter. Meets the second Sunday of each month at the Mercury Savings building on Edinger Ave., 1 block north of Beach Blvd. in Westminster. Meeting starts at 1:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy Color Computer user groups. For more information phone Allen Nedrow, chapter president, at (213) 692-3073.

SBT

The Orange County SBT Users Group is being formed and is seeking members who are interested in an atmosphere that promotes the better understanding and more efficient use of the SBT Accounting Software. Contact Jay Rubin, P.O. Box 5145, Newport Beach, CA 92662, (714) 720-8171.

SANYO

Sanyo-MS/DOS Table Top Computers, 14717 South Prairie Ave., Lawndale, CA 90260. (213) 679-1151.

Zenith-Sanyo Users Group meets 10 am every first and third Sunday at 401 S. La Brea Ave., Inglewood, CA 90301. Call Alan Gillen, (213) 674-0318 for information.

Sanyo Users Group of LA (SUGLA). Devoted to users of Sanyo MBC 550/555 micro business computer. Guests welcome. Dues $15/yr. Speakers, presentations, public domain software library, information, new hardware and software reviews. Meetings 2nd Wednesdays, 7 pm, CAL State University, LA, Student Union (Bldg. #5), 4th floor in South Pasadena Room. Contact Fred Blechman, (818) 346-7024.

TEXAS INSTRUMENTS

LA 99er Computer Group. TI 99/4A support, classes and SIGs, large software library, monthly newsletter. Demonstrations, bulk purchase discounts on hardware, software and books. A good group to join. Meetings at Torrance Public Library, 3301 Torrance Blvd. (corner of Madrone), Torrance, CA. 4th Wednesday of the month, 7 pm. Contact Terrie Masters, 148 S. Maple Drive, Beverly Hills, CA 90212, (213) 271-6930.

The TI-99 Club. Yes, there still are a lot of 99's and 99/4a's around. If you own one, then get in touch with these people. They have good info for TI owners. Meetings take place at the Westminster Community Center on the third Thursday of every month at 7:00 pm. For info, call (714) 842-0859.

TI-West (Los Angeles West Side Area). Meets at DeCoursey Engineering Laboratory, 11828 W. Jefferson Blvd., Culver City, on the 3rd Monday of each month. For information, contact Lew Howard at (213)397-9668.

San Gabriel Valley TI 99/4 Users Group meets 1st Wed./mo. at 6:30 pm in the Covina Parkway, West Covina, CA. Contact Tom Padilla, (213) 330-8240.

TI Riverside UG. Supporting the TI 99/4A. Meetings at Collett School, 3rd Thursday, 7 p.m. Contact Ed Butcher, 3523 McKinley St., Riverside, (714) 686-0336.

San Fernando Valley Texas Instruments Professional Computer User Group (SFV TI-PRO USER GROUP). Meets at 9017 Reseda Blvd. Suite #212, Northridge, on the 3rd Sunday of each month at 10:00 am. We serve the entire San Fernando and Santa Clara Valleys. Group meets to discuss: how-to techniques, programs, equipment and software. All are welcome—bring a friend. TI-Pro/AutoCAD Users are also welcome. For more info, contact Marcus Swed at (818) 993-3151 during the day and at (818) 366-0886 evenings.

Antelope Valley TI UG. TI User Group. Meetings at Palmdale Culture Center, 3rd Wed., 7 pm. Contact Len Rouw, 38540 26th St. East, (805) 947-6270.

El Toro 99 Home Computer Users Group. The ET-99 Home Computer User Group meets to demonstrate programs, equipment, and discuss techniques. Contact Ken Baldwin, 23065 Sonoita, Mission Viejo, CA 92641, (714) 855-0480. Meetings at Mercury Savings and Loan, 1-5 and Lake Forest, El Toro, 2nd Saturday of each month 9 am - 12 noon.

Tri-Valley 99'ers. We have what you're looking for! Interesting guest speakers, software/hardware demonstrations, large group library, monthly newsletters. We serve the entire Conejo Valley and beyond! Contact Steve Mehr (805) 496-8725 or Chuck Salvatore, (805) 527-4129 for more information.

BUG (Brea 99er's Users Group). Meets the first Monday of the month at 7:30 pm at the Western Federal Savings meeting room, #10 La Habra Fash-

ion Square, corner Beach and Imperial, in La Habra. For further information call Bob August at (714) 871-3405.

San Fernando Valley Texas Instruments Professional Computer User Group (SFV TI-PRO USER GROUP). Meets at 9017 Reseda Blvd. Suite #212, Northridge, on the 3rd Sunday of each month at 10:00 am. We serve the entire San Fernando and Santa Clara Valleys. Group meets to discuss: how-to techniques, programs, equipment and software. All are welcome —bring a friend. TI-Pro/AutoCAD Users are also welcome. For more info, contact Marcus Swed at (818) 993-3151 during the day and at (818) 366-0886 evenings.

TIMEX-SINCLAIR

Timex-Sinclair. South Bay and West Side groups. Call John W. Petersen at (213) 545-9581 anytime or Dr. George Kuby (213) 201-2014 after 3 pm for more information.

TOMY

Tomy Tutor computer user group. Contact Eugene C. Dinovo, P.O. Box 37, Sepulveda, CA 91343.

VICTOR

West Los Angeles Victor Users Group (WLA-VUG). Victor 9000 users - you are not alone! Meet other users. Free V9000 software & purchasing discounts for members. Victor-specific bulletin board (818) 989-2216. Meetings at 8651 Olin St., LA 90034, 7 pm, 3rd Thursday, every month except December. Contact Roger Goodman, (213) 558-8363.

Orange County Victor 9000 User Group. Meets second Friday of the month at 7:30 pm, Cal State Long Beach, Palo Verde St., Engineering Bldg. #2, Room 304, Long Beach. For information write or call Don Henderson, 9350 Bolsa Ave. #8, Westminster, CA 92683, (714) 894-0073.

WANG

Wang WP Users Group. Meets 4th Thurs. of each odd month, 6 pm. Newsletter, speakers,information network. Call for meeting place: Steven Hirsh, (213) 255-5515, or write 2858 El Roble Drive., Los Angeles 90041.

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ZENITH

Zenith-Sanyo Users Group meets 10 am every first and third Sunday at 401 S. La Brea Ave., Inglewood, CA 90301. Call Alan Gillen, (213) 674-0318 for information.

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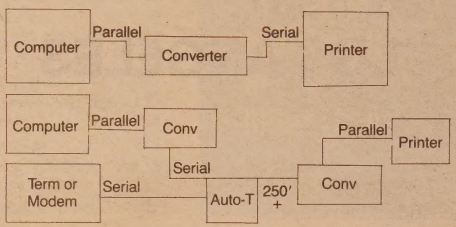

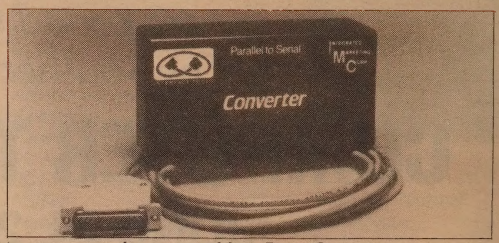

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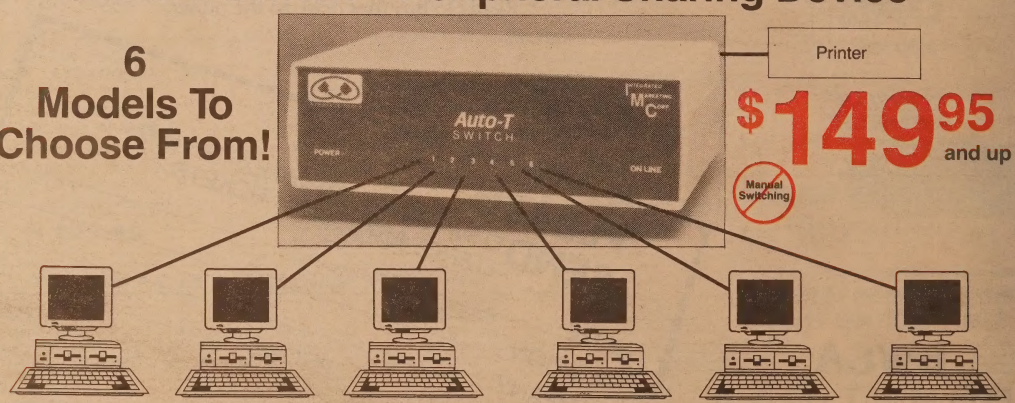

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